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# Dementia and Vascular Dementia

# Démence et démence vasculaire : évaluation de l'acupuncture

Articles connexes : - acupuncture expérimentale -

## 1. Systematic Reviews and Meta-Analysis

### 1.1. Generic Acupuncture

#### 1.1.1. Yi 2024

Yi Y, Qu Y, Lv S, Zhang G, Rong Y, Li M. Comparative efficacy and safety of non-pharmacological interventions as adjunctive treatment for vascular dementia: a systematic review and network meta-analysis. Front Neurol. 2024 Jul 12;15:1397088. https://doi.org/10.3389/fneur.2024.1397088

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| **Background** | Objectives: The incidence of vascular dementia (VaD) is steadily rising annually, significantly impacting the mental well-being and overall quality of life of the elderly, and imposing substantial economic burdens on families and society. In recent years, non-pharmacological therapies as supplementary treatments for VaD have garnered significant attention and have been extensively utilized in clinical settings. Consequently, a network meta-analysis (NMA) was conducted by us to assess the effectiveness of various non-pharmacological therapies in the management of VaD. |
| **Methods** | Design: We systematically searched seven databases from their inception up to January 2024 to identify randomized controlled trials focusing on non-pharmacological interventions for the treatment of VaD. The methodological quality and risk of bias were rigorously assessed utilizing the RoB 2.0 evaluation tool. The NMA was performed using R software and STATA 14 software, adhering to frequentist theory principles. Additionally, sensitivity analysis, meta-regression analysis, and funnel plot were conducted to assess the stability, heterogeneity, and publication bias, respectively. |
| **Results** | Results: The NMA included 91 eligible studies involving 7,657 patients. The NMA results indicated that in terms of improving Mini-Mental State Examination (MMSE), the following non-pharmacological interventions ranked higher based on p-value: **acupuncture_moxibustion_conventional treatment (ACUP_MB_CT)** [P-score = 0.95; pooled mean difference (95% CI): 5.09 (3.82; 6.36)], fastigial nucleus stimulation_CT (FNS_CT) [0.87; 4.51 (2.59; 6.43)], **ACUP_rehabilitation training_CT (ACUP_RT_CT)** [0.84; 4.19 (2.77; 5.61)], repetitive transcranial magnetic stimulation_CT (rTMS_CT) [0.82; 3.98 (3.08; 4.88)], and aerobic exercise_CT (AE_CT) [0.82; 4.25 (1.86; 6.64)]. Regarding improvement in Activities of Daily Living Scale (ADL), the following non-pharmacological interventions ranked higher based on P-score: **ACUP_MB_CT** [0.98; 17.21 (13.19; 21.23)], **ACUP_RT_CT** [0.87; 14.32 (8.43; 20.22)], rTMS_CT [0.78; 11.83 (9.92; 13.75)], and ACUP_CT [0.73; 11.23 (9.26; 13.19)]. No significant adverse reactions were reported in the included studies. |

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| **Conclusion** | Conclusion: **ACUP_MB_CT** may be considered the most efficacious intervention for enhancing cognitive function and daily living skills in individuals diagnosed with VaD. Furthermore, ACUP_RT_CT, rTMS_CT, FNS_CT, ACUP_CT, and AE_CT also demonstrate significant clinical utility. Non-pharmacological interventions are unlikely to significantly increase adverse reactions and has a certain degree of safety. |

### 1.1.2. Chen 2022

Chen Y, Wang H, Sun Z, Su X, Qin R, Li J, Sun W. Effectiveness of acupuncture for patients with vascular dementia: A systematic review and meta-analysis. Complement Ther Med. 2022 Nov;70:102857. https://doi.org/10.1016/j.ctim.2022.102857

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| **Objectives** | This meta-analysis assessed the treatment effectiveness of acupuncture in patients with vascular dementia. |
| **Methods** | The PubMed, Embase, Cochrane library, and China National Knowledge Infrastructure were searched to identify eligible randomized controlled trials (RCTs). The odds ratios (ORs) and weighted mean differences (WMDs) with 95 % confidence intervals (CIs) were used to assess the pooled effect estimates using a random-effects model for categorical and continuous outcomes, respectively. |
| **Results** | **Thirty-four RCTs (2672 patients)** were selected for the final meta-analysis. The use of acupuncture showed association with an increased incidence of effective rate (OR: 3.28; 95 % CI: 2.54-4.24; P < 0.001). The pooled WMDs revealed that acupuncture was significantly associated with an improvement in the Hasegawa dementia scale (HDS) (WMD: 4.31; 95 % CI: 3.15-5.47; P < 0.001), and Mini-Mental State Examination scores (MMSE) (WMD: 3.07; 95 % CI: 2.40-3.74; P < 0.001). However, the use of acupuncture showed no association with the level of Activities of daily living (ADL) (WMD: 1.93; 95 % CI: - 2.53 to 6.38; P = 0.397). Finally, acupuncture was associated with lower levels of Scale for the differentiation of syndromes of vascular dementia (SDSVD) (WMD: - 2.15; 95 % CI: - 4.14 to - 0.16; P = 0.034), and National Institutes of Health stroke scale (NIHSS) (WMD: - 3.90; 95 % CI: - 4.87 to - 2.94; P < 0.001). |
| **Conclusions** | Acupuncture is probably helpful in vascular stroke, but strong supportive data are not yet available. Acupuncture should be used cautiously, owing to the analysis of this study based on low to moderate evidence. Further high-quality, large-scale RCTs should be conducted. |

### 1.1.3. Kwon 2021

Kwon CY, Lee B. Acupuncture for Behavioral and Psychological Symptoms of Dementia: A Systematic Review and Meta-Analysis. J Clin Med. 2021;10(14). [220604]. https://doi.org/10.3390/jcm10143087

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| **Background** | Dementia is an important health issue worldwide, and non-pharmacological strategies for the management of behavioral and psychological symptoms of dementia (BPSD) are considered to be important. This review analyzes the effectiveness and safety of acupuncture for BPSD. |
| **Methods** | Thirteen electronic databases were comprehensively searched to find clinical studies using acupuncture on BPSD, published up to December 2020. |

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| **Results** | **Five randomized controlled clinical trials** and two before-after studies, mainly on Alzheimer's disease (AD), were included. Meta-analysis suggested that the total effective rate based on BPSD symptoms in the acupuncture combined with psychotropic drugs group was significantly higher than that in the psychotropic drugs group (risk ratio, 1.27; 95% confidence interval, 1.11 to 1.45; I2 = 51%). In terms of other outcomes related to BPSD, acupuncture as an adjunctive therapy, but not as monotherapy, was associated with significant benefits in most included studies. However, the included studies did not have optimal methodological quality. |
| **Conclusions** | Our review highlights the limited evidence proving the effectiveness and safety of acupuncture for BPSD in patients with AD. Although some clinical studies have reported the potential benefits of adjuvant acupuncture in managing BPSD, the evidence is not robust and is based on small studies. Therefore, high-quality research in this field is needed. |

### 1.1.4. Jiao 2020

Jiao Lan, Ji-fei Miao, Shu-qi Ge, Tie-qu Chai, ... Li-ming Lu. Acupuncture for cognitive impairment in vascular dementia, Alzheimer's disease and mild cognitive impairment: A systematic review and meta-analysis. European Journal of Integrative Medicine. 2020;35. [212068]. doi

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| **Introduction** | Cognitive impairment is a worldwide health problem. Numerous studies have been conducted to evaluate the effect of acupuncture on cognitive impairment. However, it is still unclear that if acupuncture shows the same efficacy on cognitive impairment caused by different diseases. Therefore, we conducted a systematic review and meta-analysis based on the current evidence to evaluate the efficacy and safety of acupuncture for cognitive impairment in vascular dementia (VD), Alzheimer's disease (AD) and mild cognitive impairment (MCI) patients. |
| **Methods** | Five databases were searched from their inception to December 2019. Randomized controlled trials (RCTs) involving VD, AD or MCI treated by acupuncture alone or as part of combination therapy were included. The primary outcomes were the Mini-Mental State Examination and the Hierarchic Dementia Scale. |
| **Results** | **Twenty-one RCTs (N = 2253)** were quantitatively analyzed. For VD, compared with Western medicine (WM), acupuncture showed better Hierarchic Dementia Scale scores ($P < 0.01$), and acupuncture plus WM also showed better Hierarchic Dementia Scale scores ($P < 0.01$). For MCI, acupuncture showed a significant improvement in Mini-Mental State Examination ($P < 0.01$) and picture recognition test scores compared with WM. For AD, WM resulted in better Hierarchic Dementia Scale scores than acupuncture ($P < 0.01$). Eight trials reported adverse events, 15 out of 2253 patients had adverse events related to acupuncture treatment, and 25 out of 2253 patients had adverse events related to WM treatment. |
| **Conclusion** | Acupuncture may be efficacious for improving cognitive function in patients with VD and MCI. However, the evidence is limited, and larger sample size and more rigorous RCTs should be conducted to verify the effectiveness and safety of acupuncture. |

### 1.1.5. Li 2019

Li Tong, Huang Qi, Liang Feng-Xia. [Acupuncture Treatment of Vascular Dementia: A Systematic Review and Meta-analysis] Shanghai Journal of Acupuncture and Moxibustion. 2019;38(9):1058. [202343].

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| **Objective** | To systematically evaluate the treatment efficacy and safety of acupuncture in treating vascular dementia. |

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| **Method** | Computer-based retrieval of Cochrane Library (CENTRAL), Pubmed, Embase, China National Knowledge Infrastructure (CNKI), China Biomedical Literature (CBM), VIP and Wanfang databases were conducted from their inception till April 201 8. The randomized Controlled trials (RCTS) studying acupuncture treatment of vascular dementia were collected. The quality of the included studies was evaluated and the required data were extracted. Meta-analysis was performed using RevMan 5.2. |
| **Result** | A total of 1 7 RCTs were included, involving 1 283 patients. The meta-analysis of dichotomous variables showed that for patients with vascular dementia, comparing the effective rate of the acupuncture group with that of the medication group, the overall effect was 1 .28(1 . 14, 1 .44), with statistical significance, suggesting that acupuncture therapy should be superior to medication comparing the efficacy in treatment of vascular dementia. The overall effect was -1.12(-6.91, 4.67) comparing the decrease in the score of activities of daily living (ADL) between the acupuncture group and the medication group, without statistical significance. Regarding the improvement of Mini-Mental State Examination (MMSE) and Hastgawa Dementia Scale (HD S) scores, the acupuncture group was superior to the medication group, and the overall effects were 1 .49(0 .91, 2,.07) and 2.89(1;89, 3.89) , repectively both witli statigcal signiicance. |
| **Conclusion** | Based on the meta-analysis of the included 17 studies, acupuncture can effectively treat vascular dementia; however, limited by the low quality, small. Sample size and poor experimental condition of the included studies, the efficacy of the acupuncture treatment needs further verification. |

### 1.1.6. Perng 2018 ☆

Perng CH , Chang YC , Tzang RF. The treatment of cognitive dysfunction in dementia: a multiple treatments meta-analysis. Psychopharmacology (Berl). 2018;235(5):1571-1580. [196202].

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| **Objective** | No cure is currently available for dementia; however, various treatments and interventions have been reported to be effective. The factors influencing the efficacy of dementia treatment have not been comprehensively evaluated. This study evaluated the factors influencing treatment effects on cognitive dysfunction in dementia by comparing the results obtained from a meta-analysis based on meta-regression. |
| **Methods** | We searched for articles, clinical trials, and meta-analyses on the efficacy of pharmacotherapy or psychosocial treatment for dementia published between 2000 and 2016 in the MEDLINE/PubMed, Cochrane Library, SCOPUS, and Airiti Library databases. |
| **Results** | The 235 selected studies involved 44,854 patients with dementia (mainly vascular dementia, Alzheimer disease, and mild cognitive impairment). A preliminary random effects meta-analysis yielded a positive overall effect. The pooled standardized mean difference of the treatment effects on cognitive dysfunction was 0.439 (95% confidence interval 0.374, 0.504). The results of meta-regression showed that in young patients ($\beta = -0.036$, p value $< 0.001$) with vascular dementia ($\beta = 0.603$, p value $< 0.001$), the efficacies of treatment 2 (symptomatic treatment for vascular dementia with piracetam, nimodipine, aniracetam, flunarizine, vinpocetine, hyperbaric oxygen, oxiracetam, or EGB761) and treatment 5 (treatment with other alternative therapies including **acupuncture**, premarin, statin, butylphthalide soft capsules, donepezil, huperzine A, and lithium treatment) were higher than those of other existing treatments for cognitive dysfunction ($\beta = 0.308$ and 0.321, p values $= 0.010$ and $< 0.001$, respectively). |
| **Conclusion** | The most effective intervention for dementia available is symptomatic treatment for vascular dementia. Antipsychotic treatment for dementia alleviates cognitive dysfunction less effectively than does symptomatic treatment. Alternative therapies are also effective at present. Further research on causes and very early diagnosis of Alzheimer disease is warranted. |

### 1.1.7. Zhu 2009 ☆

Zhu Man-Jia, Zhang Hong. [Meta-analysis in treating vascular dementia with different acupuncture methods]. Liaoning Journal of Traditional Chinese Medicine. 2009;9:1475-147. [187035].

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| **Objectives** | To assess the efficacy and safety of different acupuncture methods for vascular dementia. |
| **Methods** | Search all papers of acupuncture in treatment of vascular dementia randomized controlled trials, and evaluate the literature quality. |
| **Results** | For including the **14 RCT studies**, Jadad score and clinical efficiency has the Meta-analysis: electro-acupuncture with western medicine, the control group, 95% CI [1. 86, 4. 64], P<0. 00001;needle drug use to cope with a simple needle spines have efficiency, aggregate OR 1. 29 (95% CI 0. 23, 7. 38);injections with the control group with western medicine, summary OR 5. 55, (95% CI 1. 69-18. 16). |
| **Conclusions** | **The electricity for patients with vascular dementia improve overall efficacy has satisfactory results**, other needle because the smaller sample size, further studies are needed . |

### 1.1.8. Guo 2008 ☆

Guo Xiao-Xi, Jin Hong-Shu, Huo Li, et al. [Meta-Analysis on Acupuncture for Treatment of Dementia]. Chinese Acupuncture and Moxibustion. 2008;28(2):140. [148269].

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| **Objectives** | To assess the therapeutic effect of acupuncture on dementia. |
| **Methods** | The literatures of acupuncture for treatment of dementia are comprehensively searched in according with the demands of the evidence-based medicine (EBM) , which are collected from relevant domestic medical literature databases in the last ten years. Meta-analysis is conducted on the literatures enrolled. |
| **Results** | **Twenty-two randomized controlled trials are included**, among them, 19 trials are carried out by Meta-analysis. The total OR is 3. 72[2. 73, 5. 07] , and the funnel plot is approximately symmetry. It is indicated that the curative effect of acupuncture groups is better than the control groups (Z=8. 32, P<0. 000 01). |
| **Conclusions** | **Acupuncture therapy is effective on dementia** according to the domestic clinical literatures. However, the quality of the studies needs further improving and increasing. |

### 1.1.9. Peng 2007 Ø

Peng W, Zhao H, Liu Z, Wang S. Acupuncture for vascular dementia. Cochrane Database Syst Rev. 2007. [145474].

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| **Background** | Dementia is a widespread condition characterized by acquired global impairment of intellect, memory and personality, but with no impairment of consciousness. There is no definitive medical or surgical treatment for vascular dementia. Acupuncture is an ancient Chinese method which has been used for both the prevention and treatment of diseases for over three thousand years. Preliminary searches revealed more than 105 studies of acupuncture for treating vascular dementia. Benefit was reported in up to 70-91% of the treatment group. Body acupuncture and electroacupuncture were the most commonly used techniques. A comparison of electroacupuncture and acupuncture therapy alone suggested that the former was more effective in promoting the recovery of cognitive function. |

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| **Objectives** | The objective is to assess the efficacy and possible adverse effects of acupuncture therapy for treating vascular dementia. |
| **Methods** | Search strategy: The trials were identified from a search of the Cochrane Dementia and Cognitive Improvement group's Specialized Register on 2 February 2007 which contains records from all major health care databases and many ongoing trials databases. In addition the Allied and Complementary Medicine Database was searched and the web was searched using the search engine Copernic. Selection criteria: Randomized controlled trials testing acupuncture therapy in the treatment of vascular dementia were included regardless of language and publication types. The intervention and control group had to receive identical treatment apart from the acupuncture intervention. In view of possible confounding, studies in which acupuncture was combined with other treatments were subjected to subgroup analyses. Data collection and analysis: Titles and abstracts identified from the searches were checked by two reviewers. If it was clear that the study did not refer to a randomized controlled trial in vascular dementia, it was excluded. If it was not clear from the abstract and title, then the full text of study was obtained for an independent assessment by two reviewers. The outcomes measured in clinical trials of dementia and cognitive impairment often arise from ordinal rating scales. Summary statistics were required for each rating scale at each assessment time for each treatment group in each trial for change from baseline. |
| **Main results** | In the absence of any suitable randomised placebo-controlled trials in this area, we were unable to perform a meta-analysis. |
| **Authors' conclusions** | The effectiveness of acupuncture for vascular dementia is uncertain. More evidence is required to show that vascular dementia can be treated effectively by acupuncture. There are no RCTs and high quality trials are few. Randomised double-blind placebo controlled trials are urgently needed. |

## 1.2. Special Acupuncture Techniques

### 1.2.1. Comparison of Acupuncture techniques

#### 1.2.1.1. Wen 2022

Wen J, Cao Y, Chang S, Huang Q, Zhang Z, Wei W, Yao J, Pei H, Li H. A network meta-analysis on the improvement of cognition in patients with vascular dementia by different acupuncture therapies. Front Neurosci. 2022 Dec 14;16:1053283. https://doi.org/10.3389/fnins.2022.1053283

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| **Introduction** | The second most prevalent cause of dementia is vascular dementia (VaD). Furthermore, acupuncture is a relatively safe and effective traditional therapy for individuals with VaD. We performed a network meta-analysis to assess the effectiveness and safety of various acupuncture therapies for VaD based on existing research. |
| **Methods** | We searched six electronic databases to screen for randomized controlled trials (RCTs) comparing different acupuncture treatments in VaD patients. The Cochrne tool (Review Manager 5.3) was used to evaluate the risk of bias of the included RCTs. Based on the Grading of Recommendations Assessment, Development and Evaluation framework, we assessed the confidence in the evidence using the Confidence In the results from Network Meta-Analysis approach. We used the frequency approach to perform the network meta-analysis. Data were analyzed using R 4.1.1. |

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| **Results** | In total, we included **46 eligible studies**. The results of the network analysis showed that the combined interventions of moxibustion (MB) with body acupuncture (BA) (MB + BA) and electroacupuncture (EA) with scalp acupuncture (SA) with BA (EA + SA + BA) were more effective in improving cognitive functions and activities of daily living compared with SA or BA alone. However, in the subgroup analysis, EA + SA + BA showed better efficacy in short- and mid-term acupuncture compared with other acupuncture therapies. |
| **Conclusion** | Combined acupuncture therapy may be a safe and effective intervention for individuals with VaD, and MB + BA and EA + SA + BA appear to be the most effective interventions. However, because the analysis of this study was based on low-to-moderate evidence, there remains no strong supporting evidence. Thus, high-quality, large-scale, and long-term studies should be conducted in the future to assess the effectiveness and safety of acupuncture in VaD. |

### 1.2.2. Moxibustion

#### 1.2.2.1. Jiang 2022

Jiang X, Lu T, Dong Y, Shi J, Duan M, Zhang X. Effectiveness and safety of moxibustion for vascular dementia: A systematic review and meta-analysis. Medicine (Baltimore). 2022 Jul 1;101(26):e29804. https://doi.org/10.1097/MD.0000000000029804

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| **Background** | Vascular dementia (VD) is the only type of dementia that can be prevented and treated. Compared to conventional treatment methods, moxibustion therapy is more effective for VD. This study evaluated the effectiveness and safety of moxibustion in the treatment of VD through a meta-analysis, to provide a complete overview to the advantages of traditional Chinese medicine and provide guidance for clinical application. |
| **Methods** | Clinical trials on the therapeutic effects of moxibustion or moxibustion combined with acupuncture on VD were retrieved from the VIP information database, Wanfang, CNKI, PubMed, EMBase, and other resources. The included studies were conducted from January 2000 to October 2020. Among the retrieved studies, the content met the standards upon being collated and extracted, and RevMan5.3 was used for meta-analysis. |
| **Results** | **Thirteen randomized controlled trials (RCTs)** were included with **997 patients**. The RevMan bias risk assessment revealed that the quality of the studies was generally low. The meta-analysis showed that compared to conventional treatments, moxibution therapy in terms of effective rate, posttreatment Hasegawa Dementia Scale, Mini-Mental State Examination (MMSE), Activity of Daily Living Scale (ADL), Somatostatin (SS), Arginine Vasopressin (AVP), and Syndrome Differentiation Scale of VD were more favorable, and the difference in efficacy was statistically significant. Furthermore, no adverse events were observed in either group. Sensitivity analysis showed strong homogeneity and stable results, whereas funnel plot analysis revealed no significant publication bias. |
| **Conclusions** | Moxibustion is effective and safe in the treatment of VD, but more high-quality evidence from further studies is required to support this. |

### 1.2.3. electroacupuncture

#### 1.2.3.1. Wu 2018 ☆

Wu Jiamin, Lin Yingqi, Li Xinhao, et al. [Efficacy Difference of Electro - Acupuncture and Nimodipine in the Treatment of Vascular Dementia: A Study of Meta Analysis]. Journal of Clinical Acupuncture and Moxibustion. 2018;34(12):51. [193163].

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| **Objective** | To compare the efficacy difference of electro - acupuncture treatment and Nimodipine treatment in treating vascular dementia. |
| **Methods** | Documents published from 1987 to 2018 were retrieved from the databases of Wanfang Digital Periodicals Electronic, CNKI, Chinese Biomedical Literature, VIP Chinese Science, of which the randomized and quasi - randomized controlled trials were screened out and their quality were judged by jadad quality assessment scoring system. Data were analyzed with the Cochrane collaboration' s Revman 5. 3 software. |
| **Results** | A total of **9 trials involving 656 patients** were included. Meta analysis showed that there was statistical difference between electro - acupuncture treatment and Nimodipine treatment in terms of MMSE score and HDS score when treating vascular dementia. Meta analysis showed that there was no statistical difference between electro - acupuncture treatment and Nimodipine treatment in terms of ADL score when treating vascular dementia. |
| **Conclusion** | Electro - acupuncture treatment can significantly improve the mentality and cognitive ability of patients with vascular dementia, which is better than Nimodipine treatment. However, there was no statistical difference between the two kinds of treatment in improving activity of daily living. More studies of large sample and high quality are needed to verify their efficacy. |

#### 1.2.3.2. Peng 2004 ☆

Peng Wei-Na, Zhao Hong, Liu Zhi-Shun, et al. [Systematic Assessment of Electroacupuncture Treatment for Vascular Dementia]. Chinese Acupuncture and Moxibustion. 2004;24(5):297. [129055].

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| **Objectives** | To assess the therapeutic effect and safety of electroacupuncture treatment for vascular dementia. |
| **Methods** | With acupuncture, electroacupuncture, vascular dementia, multi-infarctional dementia, dementia and so on used as subject words, Cochrane Dementia Group, Clinical Trial Database, Cochrane Complementary Medicine Database, Central Database of Cochrane Library, and MEDICINE, EMBASE, Chinese Biomedical CD Database (CBM) are searched, and 20 journals of traditional Chinese medicine and relevant academic conference proceedings are searched by hand, as well as the reference lists of the identified relevant papers are used as complementary search. |
| **Results** | **Five randomized controlled trials about electroacupuncture treatment of vascular dementia** conform'to the criteria enrolled and all of them are higher quality. In the 308 cases enrolled, the total OR of the global function is 5. 64 (95% CI 2. 87 to 11. 09) and the total OR of HDS is 6. 07 (95°o CI 3. 76 to 8. 38). |
| **Conclusions** | **Electroacupuncture treatment is effective in improvement of the global function and cognitive function for vascular dementia and it is safe**. However, more evidence and studies of high quality are still needed. |

### 1.2.4. Auricular Acupuncture

#### 1.2.4.1. Kwon 2018

Kwon CY , Lee B , Suh HW , Chung SY , Kim JW. Efficacy and Safety of Auricular Acupuncture for Cognitive Impairment and Dementia: A Systematic Review. Evid Based Complement Alternat Med.

2018. [168729].

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| **Objectives** | To analyze the efficacy and safety of auricular acupuncture (AA) in patients with cognitive impairment and dementia. |
| **Methods** | Twelve electronic databases were searched for randomized controlled trials evaluating effects of AA in patients with cognitive impairment and/or dementia, from their inception to August 2017. The primary outcome was cognitive function, and secondary outcomes were self-care ability, quality of life, clinical efficacy rate, and incidences of adverse events. |
| **Results** | **Nine studies** were included, and five involving 677 participants were analyzed quantitatively. Compared with Western medications (WM), AA had mixed effects on cognitive functions (Mini-Mental State Examination [MMSE], mean difference [MD] 0.73, 95% confidence interval [CI] -0.02 to 1.48; Hierarchic Dementia Scale [HDS], MD 2.21, 95% CI 1.09 to 3.33); there was no significant improvement in the activities of daily living (ADL) score (MD 0.20, 95% CI -3.51 to 3.91) in patients with vascular dementia (VD). Compared to WM, AA combined with WM showed better clinical efficacy rate (risk ratio [RR] 1.42, 95% CI 1.06 to 1.91) in patients with VD; there was no significant improvement in cognitive functions (MMSE, MD 0.97, 95% CI -0.44 to 2.38; Montreal Cognitive Assessment [MoCA], MD 0.22, 95% CI -1.83 to 2.27) in patients with mild cognitive impairment (MCI). Compared to herbal medicine (HM), AA plus HM showed significant improvements in cognitive function (MMSE, MD 1.31, 95% CI 0.13 to 2.49) in patients with MCI and patients with vascular cognitive impairment, no dementia (VCIND) and in ADL score (MD -6.70, 95% CI -8.78 to -4.62) in patients with MCI. No adverse event associated with AA was reported. |
| **Conclusion** | The evidence reveals mixed efficacy of AA in patients with cognitive impairment and/or dementia. However, the results were inconclusive because of the small number and poor methodological quality of the included studies. |

### 1.2.5. TCM-acupuncture combinations

#### 1.2.5.1. Xue 2024

Xue Q, Huang S, Liu LX, Bai S, Jiang S, Ge RD, Peng DT. Efficacy and dispensing patterns of TCM-acupuncture combinations in vascular dementia treatment: a meta-analysis and data mining analysis. Am J Transl Res. 2024 Nov 15;16(11):6187-6207. https://doi.org/10.62347/ZYCW4830

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| **Objectives** | To evaluate the clinical efficacy of the combination of acupuncture and medicine for vascular dementia (VD) treatment, and to analyze and summarize the relevant association rules. |

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| **Methods** | A systematic search of Chinese and English databases such as CNKI, VIP, Wanfang, Embase, PubMed, Cochrane Library, and Web of Science was performed along with a manual search to screen for randomized controlled trials that met the inclusion and exclusion criteria that were published over a period from January 1, 2000, to July 31, 2023. Literature quality assessment and meta-analysis were performed using the Cochrane Handbook for Systematic Reviews of Interventions and RevMan 5.4 to explore the efficacy of TCM-acupuncture combination therapy and conventional Western medical therapy for VD treatment, as well as assess relevant improvements in MMSE, ADL, and HDS scale scores. A study database was created by entering the required data into MS Excel. The PROSPERO registration number for this systematic evaluation is CRD42023458282. High-use-frequency drugs and acupoints were screened for by using frequency statistics, and the nature of their categories was recorded separately. The source database was then imported into SPSS (version 26.0.0.2) and IBM SPSS Modeler (version 18.0) to elucidate high-use-frequency TCM drugs and acupoints for VD treatment. |
| **Results** | Eighteen randomized controlled clinical trials with a total of 1617 participants were finally included. The meta-analysis results suggested that treatment combining traditional Chinese medicine (TCM) with acupuncture performed better in terms of efficacy and clinical improvement of related outcome indicators [OR = 2.54, 95% CI (1.98, 3.26), P < 0.05]. Twenty-four prescription drug groups and 18 acupuncture prescriptions were extracted from the 18 included studies. The following results were obtained: (1) The drugs with the highest use frequency were Acori Tatarinowii Rhizoma, Glycyrrhizae Radix Et Rhizoma, and Salviae Miltiorrhizae Radix Et Rhizoma; high-use-frequency tonifying herbs; and sweet, warm, and liver meridian-attributing drugs. (2) The acupoints with the highest use frequency were Baihui, Sishencong, and Zusanli, often applied on the head, face, and Du meridian points, as well as on high-use-frequency crossing acupoints. (3) The high-use-frequency drugs and acupoints could be clustered into four categories each. (4) The strongest associations were noted for the drug pairs Polygalae Radix-Glycyrrhizae Radix Et Rhizoma and Polugoni Multiflori Radix-Acori Tatarinowii Rhizoma, as well as the acupoint pairs Sishencong-Baihui and Zusanli-Baihui. |
| **Conclusion** | TCM drugs combined with acupuncture demonstrated considerable clinical efficacy for VD treatment. The TCM-based treatment of VD mostly starts from the liver meridian and the Du meridian, with the use of more sweet and warm herbs and crossing acupoints. The general principles of treatment include smoothening the flow of qi and blood, tonifying the liver and kidneys in TCM, and enhancing the patient's mood and cognitive function. |

## 1.3. Special Clinical Forms

### 1.3.1. Sleep Disturbance in Dementia

#### 1.3.1.1. Gan 2025

Gan L, Li J, Deng C, Liu D, Lin H, Zou H, Tang C, Wu Z. Efficacy of acupuncture in ameliorating sleep disorders in patients with dementia: A systematic review and meta-analysis. J Alzheimers Dis. 2025 Dec;108(3):997-1014. https://doi.org/10.1177/13872877251377654

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| **Background** | BackgroundWhile cognitive function has been extensively researched in dementia patients, studies focusing on their sleep disorders remain limited. Evidence suggests acupuncture may improve sleep quality in this population, but robust clinical data are still lacking. |

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| **Objective** | ObjectiveTo evaluate acupuncture's efficacy for sleep disorders in dementia patients via meta-analysis. |
| **Methods** | MethodsWe systematically searched eight databases for randomized controlled trials (RCTs) that evaluated the efficacy of acupuncture for sleep disorders in patients with dementia. Primary outcomes were the Pittsburgh Sleep Quality Index (PSQI) and Efficiency Rate; as a secondary outcome, cognitive function was evaluated with the Mini-Mental State Examination (MMSE). Risk of bias was assessed using Cochrane RoB 2.0, and the certainty of evidence was graded via GRADE. |
| **Results** | ResultsAnalysis of **10 RCTs (n = 721)** found acupuncture was associated with improved outcomes, showing higher Efficiency Rate (OR = 4.09, 95%CI [2.52,6.64]), reduced PSQI-Total Point (MD = -5.07, 95%CI [-6.47,-3.66]) with enhanced stability when combined with routine drug therapy (RDT), and improved MMSE scores (MD = 5.41, 95%CI [3.12,7.69]) with greater stability when acupuncture was combined with traditional Chinese medicine (TCM) related treatments. However, the certainty of evidence was limited due to heterogeneity and methodological constraints (moderate for Efficiency Rate, low for PSQI-Total Point and MMSE). |
| **Conclusion** | ConclusionsAcupuncture shows potential for improving sleep disorders and cognitive function in dementia patients, particularly in combination with RDT or TCM-related treatments. However, due to the low quality of included RCTs, further large-scale, rigorous trials are needed. |

#### 1.3.1.2. Kwon 2021

Kwon CY, Lee B, Ha DJ. Effectiveness and safety of acupuncture in treating sleep disturbance in dementia patients: A PRISMA-compliant systematic review and limitations of current evidence. Medicine (Baltimore). 2021;100(32). [221304]. https://doi.org/10.1097/md.0000000000026871

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| **Background** | Dementia is of increasing importance, as it is a major public health problem worldwide. Sleep disturbance is common in dementia patients and may be associated with worse cognitive symptoms or behavioral and psychological symptoms of dementia. Non-pharmacological approaches, such as acupuncture, for treating this clinical condition are gaining importance. This study aimed to comprehensively search and analyze randomized controlled clinical trials (RCTs) of acupuncture in treating sleep disturbance or sleep disorders in dementia patients. |
| **Methods** | A comprehensive search was conducted from 12 electronic databases on December 2, 2020. We included RCTs reporting the effectiveness and safety of acupuncture in treating sleep disorders or disturbance in dementia patients. The methodological quality of the included studies was assessed using the Cochrane Collaboration's risk-of-bias tool. |
| **Results** | Five articles with four original RCTs met the inclusion criteria. These studies reported clinical data suggesting that adjuvant **acupuncture** for hypnotics, and **ear acupressure** in dementia patients with sleep disorders or sleep disturbance may have clinical benefits in certain sleep-related parameters and total effective rate (TER). Only 1 study reported the safety profile of the intervention, and no acupuncture-related adverse reactions were reported. Some studies compared 2 kinds of acupuncture methods, and found that specific acupuncture methods were superior to conventional acupuncture in improving sleep-related parameters, cognitive function and TER. The methodological quality of the included clinical studies was not high. |
| **Conclusions** | There were limited acupuncture studies on this topic. Given the number of studies included and their sample size, methodological quality, and heterogeneities, clinically relevant conclusions could not be drawn. Further clinical studies are needed in this field considering its urgency and importance. |

#### 1.3.1.3. Prins 2020

Prins AJ, Scherder EJA, van Straten A, Zwaagstra Y, Milders MV. Sensory Stimulation for Nursing-Home Residents: Systematic Review and Meta-Analysis of Its Effects on Sleep Quality and Rest-Activity Rhythm in Dementia. Dement Geriatr Cogn Disord. 2020;:1-16. [212296]. doi

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| **Introduction** | Disrupted sleep-wake cycles might be associated with an exacerbation of behavioural disturbances and accelerate disease progression in dementia. The effect of sensory stimulation for improving sleep quality is unclear. |
| **Methods** | A systematic literature search was performed and all studies examining the effects of a sensory stimulation intervention (i.e. bright light, massage, **acupuncture**, animal-assisted interventions) on rest-activity rhythm (RAR) and/or nocturnal restlessness in nursing-home residents with dementia were included. |
| **Results** | Sensory stimulation was shown to improve nocturnal behavioural restlessness as well as sleep duration and continuation, but the effect on the number of awakenings, RAR, and daytime sleep was negligible. Notable was the high heterogeneity between studies regarding treatments and patients' characteristics and sleep parameters. |
| **Conclusion** | Sleep quality and nocturnal restlessness in nursing-home residents with dementia may benefit from sensory stimulation. An environment with sensory stimulation may prevent or improve sleep disturbances in nursing homes, and thereby contribute to a better quality of life for their patients. |

#### 1.3.1.4. O'Caoimh 2019

O'Caoimh R, Mannion H, Sezgin D, O'Donovan MR, Liew A, Molloy DW. Non-pharmacological treatments for sleep disturbance in mild cognitive impairment and dementia: A systematic review and meta-analysis. Maturitas. 2019:82-94. [200466].

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| **Background** | No disease-modifying treatments for dementia are available. Sleep disturbance is strongly associated with cognitive impairment. Non-pharmacological treatments targeting sleep may offer an alternative therapeutic approach. |
| **Methods** | We searched PubMed, CINAHL, EMBASE and the Cochrane library for non-pharmacological treatments for sleep disturbance in mild cognitive impairment (MCI) and dementia, published in English from October 1965 to 2018, including all designs, excluding studies of drug therapies. |

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| **Results** | In all, 53 papers representing 48 studies were included. Participant age ranged from 67.3 to 89.4 years. Most studies (79%) had small samples (<50 participants, range 1-173) and were conducted in long-term/residential care (62%). The majority (85%) recruited participants with moderate-severe dementia; mean MMSE scores ranged from 0 to 28.3/30. Four studies examined MCI. Light therapy delivered over 1-10 weeks was the most studied stand-alone intervention (n = 27), and the majority (81.5%) of these studies found improvements on objective or subjective sleep measures, though the evidence was inconclusive with significant clinical and methodological heterogeneity. Seven multi-modal intervention studies were identified, all incorporating light exposure, and six of these reported improved sleep. Other interventions included electrotherapy stimulation (n = 4), physical exercises/activities (n = 4), **acupressure/acupuncture (n = 3)** and mindfulness/cognitive behavioural therapy (n = 3). Those examining MCI utilised different mono-modal approaches. A meta-analysis of data from randomised controlled trials showed a statistically significant (mean difference = 3.44, 95% CI: 0.89-5.99, I2=0%; p = 0.008) improvement in sleep efficiency between interventions and controls, favouring the pooled interventions (bright light, multi-domain and other therapies). No other significant differences in sleep or non-sleep outcomes were found. |
| **Conclusions** | While evidence is available for non-pharmacological sleep interventions, particularly multi-domain approaches, studies were diverse and had small samples. More research examining multi-modal interventions, community-dwellers and those with MCI is required. |

#### 1.3.1.5. Dimitriou 2017

Dimitriou TD, Tsolaki M. Evaluation of the efficacy of randomized controlled trials of sensory stimulation interventions for sleeping disturbances in patients with dementia: a systematic review. Clin Interv Aging. 2017;:543-548. [36953].

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| **OBJECTIVE** | The current review aims to evaluate the sensory stimulation interventions in terms of reducing sleeping disturbances in patients with dementia. The nonpharmacological interventions seem to be an efficient, inexpensive, and easy tool for family caregivers. Moreover, sleeping disorders increase caregivers' distress and may lead to hospitalization. |
| **METHODS** | A systematic literature search was performed. Eleven randomized controlled trials have been found. Among these eleven trials, one referred to massage therapy and acupuncture, and the other ten studies referred to bright light therapy. RESULTS: The results demonstrated that there are no relevant randomized controlled trials of music therapy, aromatherapy, and multisensory environment/Snoezelen referring to sleeping disturbances. Several studies have been conducted about the effect of the bright light therapy, and there is also another study that combines massage therapy and acupuncture therapy. |
| **CONCLUSION** | Sensory stimulation interventions are inexpensive and practical for dementia caregivers; however, only bright light therapy seems to be useful to reduce sleeping problems in dementia. The other sensory stimulation interventions lack evidence, and there is a strong need for further research. |

## 1.4. Preclinical and mechanistic systematic reviews

### 1.4.1. Gan 2026

Gan L, Fan Y, Liu D, Zheng J, Han J, Deng C, Tang X, Xu N, Wu Z. Effect of acupuncture on

monoaminergic neurotransmitters in animal models of vascular dementia: a preclinical systematic review and meta-analysis. Front Physiol. 2026;17:1811438.
https://doi.org/10.3389/fphys.2026.1811438

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| **Background** | Vascular dementia (VaD) is characterized by progressive cognitive impairment associated with chronic cerebral hypoperfusion. Monoaminergic neurotransmitter dysfunction has been implicated in its pathogenesis. Acupuncture has shown neuroprotective potential in experimental models; however, its regulatory effects on monoaminergic systems remain to be systematically clarified. This study aimed to evaluate the effects of acupuncture on monoaminergic neurotransmitters and cognitive function in animal models of VaD through a preclinical systematic review and meta-analysis. |
| **Methods** | In accordance with the PRISMA 2020 guidelines, a comprehensive search across eight English and Chinese databases was conducted from inception to October 2025 to identify randomized controlled animal studies investigating acupuncture in VaD models. Primary outcomes focused on the levels of monoaminergic neurotransmitters, including serotonin (5-HT), norepinephrine (NE), and dopamine (DA). Secondary outcomes encompassed acetylcholine (ACh) levels, long-term potentiation (LTP), and behavioral performance. Risk of bias was systematically assessed using the SYRCLE tool, and statistical synthesis was performed using R software (version 4.3.1). |
| **Results** | **Nine studies involving 386 rodents** were included. Meta-analysis demonstrated that acupuncture elevated the levels of 5-HT (SMD = 1.35), NE (SMD = 2.67), and DA (SMD = 1.43). Furthermore, acupuncture treatment was associated with increased ACh levels (SMD = 3.75) and enhanced synaptic plasticity, as evidenced by improved LTP (SMD = 4.75). Behavioral assessments revealed substantial cognitive improvements, indicated by a reduction in escape latency (SMD = -4.66) and an increased number of platform crossings (SMD = 3.00) in the Morris water maze test. |
| **Conclusion** | Acupuncture may ameliorate cognitive impairment in VaD by modulating monoaminergic systems and enhancing synaptic plasticity. However, substantial heterogeneity and small sample sizes underscore the exploratory nature of these findings. To avoid overgeneralization of mechanistic pathways, further rigorous studies are essential. |

# 2. Overviews of Systematic Reviews

## 2.1. He 2021

He W, Li M, Han X, Zhang W. Acupuncture for Mild Cognitive Impairment and Dementia: An Overview of Systematic Reviews. Front Aging Neurosci. 2021. [211503]. doi

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| **Background** | Dementia is a gradual decline in cognitive ability and is becoming more common in our elderly population. Mild cognitive impairment (MCI) is defined as a slight clinical deterioration of memory capacity, below the level of normal aging, but does not constitute a clinical diagnosis of dementia. To date, no interventions have been proven to cure MCI and dementia fully. Purpose: To evaluate the potential effectiveness and safety of acupuncture for mild cognitive impairment (MCI) and dementia and evaluate the methodological quality of systematic reviews (SRs). |

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| **Methods** | We conducted a literature search for SRs with meta-analyses in seven Chinese and international databases through October 1, 2020. The basic characteristics of the included SRs/meta-analyses and the basic information of the original included randomized controlled trials were extracted by three reviewers independently. A meta-analysis of the original randomized controlled trials from the included SRs/meta-analyses was performed using Stata 12.0 software. The Assessing the Methodological Quality of Systematic Reviews 2 was used to assess the methodological quality of the included SRs/meta-analyses, and the Grading of Recommendations, Assessment, Development, and Evaluation was used to rate the quality of evidence. |
| **Results** | A total of **35 SRs/meta-analyses** were included, and the majority showed that acupuncture was more effective than western medicine or conventional therapy for MCI and dementia [odds ratio =1.39; 95% confidence interval (CI): 1.24, 1.56]. There was a statistically significant difference in the Mini-Mental State Examination score (weighted mean difference = 1.23; 95% CI: 0.78, 1.68; $p < 0.00001$), and there was no significant improvement in the activities of daily living score (weighted mean difference = 1.58; 95% CI: -0.02, 3.18; $p = 0.053$). The assessment results of Assessing the Methodological Quality of Systematic Reviews 2 showed that the methodological quality of most included SRs/meta-analyses was critically low; the lowest scores were items 2, 7, and 10. For Grading of Recommendations, Assessment, Development, and Evaluation, of the 73 outcomes, 50 (68.5%) outcomes were low or very low quality, and 23 (31.5%) outcomes were moderate quality. |
| **Conclusions** | Acupuncture can be considered as an alternative for the treatment of MCI and dementia when western medicine or other therapies are contraindicated. More high-quality evidence is needed to determine further the effectiveness of acupuncture. |

# 3. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)
Ø negative recommendation (or lack of evidence)

## 3.1. Istituto Superiore di Sanità (ISS, Italy) 2024 Ø

Fabrizi E, Ancidoni A, Locuratolo N, Piscopo P, Della Gatta F, Salemme S, Pani SM, Marconi D, Vignatelli L, Sagliocca L, Caffarra P, Secreto P, Guaita A, Stracciari A, Vanacore N, Lacorte E; Guideline Working Group. The Italian guideline on diagnosis and treatment of dementia and mild cognitive impairment. Age Ageing. 2024 Nov 1;53(11):afae250.
https://doi.org/10.1093/ageing/afae250
https://www.demenze.it/documenti/schede/the_italian_guideline_on_the_diagnosis_and_treatment_of_dementia_and_mci.pdf

100- Do not offer acupuncture to treat cognitive symptoms in dementia. Strong against

## 3.2. National Institute for Health and Care Excellence (NICE, UK) 2018 Ø

Dementia: assessment, management and support for people living with dementia and their carers (NG97). Evidence-based recommendations on diagnosing and managing dementia (including Alzheimer's disease) . London (UK): National Institute for Health and Care Excellence (NICE). 2018;:43P. [174901]. Annexes realtives à l'acupuncture [174901-b].

*1.4 Interventions to promote cognition, independence and wellbeing.* 1.4.5 Do not offer acupuncture to treat dementia.

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