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urinary incontinence after stroke

Incontinence urinaire post-AVC : évaluation de l'acupuncture

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Dai 2025 (plus rehabilitation therapy)

Dai Z, Wang Y, Du Y, Hou L, Li Y, Ma K, Yan Q, Wen J, Dong X, Chen X, Zhang L. Efficacy of acupuncture therapy plus related rehabilitation therapy for post-stroke urinary incontinence: a systematic review and meta-analysis. Front Neurol. 2025 May 8;16:1575970. https://doi.org/10.3389/fneur.2025.1575970

Introduction	Researchers have increasingly focused on the efficacy of acupuncture therapy (AT) combine with rehabilitation therapy (RT) for post-stroke urinary incontinence (PSUI). This study aims to fully assess the efficacy of AT plus related RT in treating PSUI.
Methods	We systematically searched eight databases from their inception to March 2025 for randomized controlled trials (RCTs) evaluating AT plus related RT for PSUI. Stata 18.0 was utilized for the meta-analyses.
Results	**Thirty-six studies involving 2,796 subjects** were included, with AT plus related RT performed in the treatment group. The total effective rate of AT plus RT was significantly higher than that of RT or AT alone [RR = 1.23, 95% CI (1.19, 1.28), p < 0.001]. AT plus RT was also superior to related RT or related AT in improving maximum bladder capacity [WMD = 44.93, 95% CI (32.00, 57.87), p < 0.001]; increasing maximum urinary flow rate [WMD = 2.64, 95% CI (1.27, 4.01), p < 0.001], mean urine output per time [WMD = 44.30, 95% CI (20.31, 68.29), p < 0.001], and pelvic floor muscle strength (including fast [WMD = 2.64, 95% CI (1.04, 4.25), p = 0.001], slow [WMD = 6.09, 95% CI (3.44, 8.75), p < 0.001], and complex muscle fibers [WMD = 5.46, 95% CI (3.60, 7.32), p < 0.001]); and reducing the residual urine volume [WMD = -20.84, 95% CI (-27.53, -14.14), p = 0.001], maximal detrusor pressure [WMD = -10.6, 95% CI (-12.72, -8.55), p = 0.001], frequency of 24-h UI [WMD = -1.40, 95% CI (-1.92, -0.88), p < 0.001], and frequency of 24-h urination [WMD = -3.76, 95% CI (-4.87, -2.66), p < 0.001]. Moreover, AT plus RT significantly reduced scores on the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) [WMD = -2.40, 95% CI (-2.93, -1.83), p < 0.001]. While reductions were also observed in the quality of life (QOL) score [WMD = -0.72, 95% CI (-1.64, 0.20), p = 0.127] and the National Institutes of Health Stroke Scale (NIHSS) score [WMD = -3.51, 95% CI (-8.20, 1.18), p = 0.143], these did not reach statistical significance. Additionally, AT plus RT significantly increased the Incontinence Quality of Life Scale (I-QOL) score [WMD = 11.71, 95% CI (8.10, 15.33), p < 0.001] and the Barthel index (BI) score [WMD = 6.92, 95% CI (-0.22, 14.05), p = 0.058].

Discussion	AT plus RT outperforms related RT or related AT in improving clinical efficacy and bladder function in PSUI patients. However, the number of included studies on AT plus RT remains limited, highlighting the need for more high-quality RCTs are needed to validate the findings.

1.1.2. Sun 2025

Sun K, Fu C, Zhao X, Fu M, Han Y, Zhang P. Filiform-needle acupuncture for poststroke urinary incontinence: a meta-analysis. J Acupunct Tuina Sci. 2025;23:178–190. https://link.springer.com/article/10.1007/s11726-025-1497-x

Objective	To evaluate the efficacy and safety of filiform-needle acupuncture (FA) in the treatment of poststroke urinary incontinence (PSUI).
Methods	All published papers in PubMed, Excerpta Medica Database (EMBASE), Cochrane Library, Web of Science, China National Knowledge Infrastructure (CNKI), Chongqing VIP Database (VIP), Wanfang Data Knowledge Service Platform (Wanfang), and China Biology Medicine Disc (CBM) were retrieved by computer. The retrieval time was from each database's inception to December 9, 2023. Meta-analysis and sensitivity analysis were performed using the Revman V5.4 software, and GARDE evaluation was performed using GRADEpro GDT. Dichotomous variables were analyzed by the relative risk (RR), and weighted mean difference (WMD) was used for continuous variables. Each effect size was expressed as a 95% confidence interval (CI).
Results	A total of **14 studies** were included, comprising a total of **1 259 patients**. The findings of the meta-analysis showed that the improvements of the maximum bladder capacity [WMD=64.63, 95% CI (41.73, 87.53), P<0.00001], 72 h urination frequency [WMD=−5.27, 95% CI (−6.40, −4.13), P<0.00001], and 72 h urinary incontinence frequency [WMD=−1.62, 95% CI (−2.60, −0.64), P=0.001] in PSUI patients by FA were superior compared to conventional therapy. FA plus rehabilitation therapy (RT) was superior to RT alone in improving the maximum bladder capacity [WMD=35.17, 95% CI (28.31, 42.03), P<0.00001], the International Consultation on Incontinence questionnaire short form (ICI-Q-SF) score [WMD=−2.66, 95% CI (−3.28, −2.05), P<0.00001], and incontinence quality of life questionnaire (I-QOL) score [WMD=8.07, 95% CI (3.28, 12.32), P=0.0002]. The incidence of adverse reactions in FA was higher than that in RT [RR=21.62, 95% CI (4.04, 115.71), P=0.0003], but the severity was mild and did not affect the integrity of the treatment.
Conclusion	FA has better safety, and its improving effect on bladder urinary storage function and urinary incontinence symptoms in patients with PSUI is clear. Combined with RT, it can better improve the quality of life in the patients. However, more high-quality studies are still needed for further updates and verification.

1.1.3. Thomas 2019 ☆

Thomas LH, Coupe J, Cross LD, Tan AL, Watkins CL. Interventions for treating urinary incontinence after stroke in adults. Cochrane Database Syst Rev. 2019. [197279].

Background	Urinary incontinence can affect 40% to 60% of people admitted to hospital after a stroke, with 25% still having problems when discharged from hospital and 15% remaining incontinent after one year. This is an update of a review published in 2005 and updated in 2008. OBJECTIVES: To assess the effects of interventions for treating urinary incontinence after stroke in adults at least one-month post-stroke.

Methods	SEARCH METHODS: We searched the Cochrane Incontinence and Cochrane Stroke Specialised Registers (searched 30 October 2017 and 1 November 2017 respectively), which contain trials identified from the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, MEDLINE In-Process, MEDLINE Epub Ahead of Print, CINAHL, ClinicalTrials.gov, WHO ICTRP and handsearched journals and conference proceedings. SELECTION CRITERIA: We included randomised or quasi-randomised controlled trials. DATA COLLECTION AND ANALYSIS: Two review authors independently undertook data extraction, risk of bias assessment and implemented GRADE.

Main results	We included 20 trials (reporting 21 comparisons) with 1338 participants. Data for prespecified outcomes were not available except where reported below. Intervention versus no intervention/usual care Behavioural interventions: Low-quality evidence suggests behavioural interventions may reduce the mean number of incontinent episodes in 24 hours (mean difference (MD) -1.00, 95% confidence interval (CI) -2.74 to 0.74; 1 trial; 18 participants; P = 0.26). Further, low-quality evidence from two trials suggests that behavioural interventions may make little or no difference to quality of life (SMD -0.99, 95% CI -2.83 to 0.86; 55 participants).Specialized professional input interventions: One trial of moderate-quality suggested structured assessment and management by continence nurse practitioners probably made little or no difference to the number of people continent three months after treatment (risk ratio (RR) 1.28, 95% CI 0.81 to 2.02; 121 participants; equivalent to an increase from 354 to 453 per 1000, 95% CI 287 to 715).Complementary therapy: **Five trials assessed complementary therapy using traditional acupuncture, electroacupuncture and ginger-salt-partitioned moxibustion plus routine acupuncture**. Low-quality evidence from five trials suggested that complementary therapy may increase the number of participants continent after treatment; participants in the treatment group were three times more likely to be continent (RR 2.82, 95% CI 1.57 to 5.07; 524 participants; equivalent to an increase from 193 to 544 per 1000, 95% CI 303 to 978). Adverse events were reported narratively in one study of electroacupuncture, reporting on bruising and postacupuncture abdominal pain in the intervention group. Physical therapy: Two trials reporting three comparisons suggest that physical therapy using transcutaneous electrical nerve stimulation (TENS) may reduce the mean number of incontinent episodes in 24 hours (MD -4.76, 95% CI -8.10 to -1.41; 142 participants; low-quality evidence). One trial of TENS reporting two comparisons found that the intervention probably improves overall functional ability (MD 8.97, 95% CI 1.27 to 16.68; 81 participants; moderate-quality evidence).Intervention versus placebo. Physical therapy: One trial of physical therapy suggests TPTNS may make little or no difference to the number of participants continent after treatment (RR 0.75, 95% CI 0.19 to 3.04; 54 participants) or number of incontinent episodes (MD -1.10, 95% CI -3.99 to 1.79; 39 participants). One trial suggested improvement in the TPTNS group at 26-weeks (OR 0.04, 95% CI 0.004 to 0.41) but there was no evidence of a difference in perceived bladder condition at six weeks (OR 2.33, 95% CI 0.63 to 8.65) or 12 weeks (OR 1.22, 95% CI 0.29 to 5.17). Data from one trial provided no evidence that TPTNS made a difference to quality of life measured with the ICIQLUTSqol (MD 3.90, 95% CI -4.25 to 12.05; 30 participants). Minor adverse events, such as minor skin irritation and ankle cramping, were reported in one study. Pharmacotherapy interventions: There was no evidence from one study that oestrogen therapy made a difference to the mean number of incontinent episodes per week in mild incontinence (paired samples, MD -1.71, 95% CI -3.51 to 0.09) or severe incontinence (paired samples, MD -6.40, 95% CI -9.47 to -3.33). One study reported no adverse events. Specific intervention versus another intervention. Behavioural interventions: One trial comparing a behavioural intervention (timed voiding) with a pharmacotherapy intervention (oxybutynin) contained no useable data. Complementary therapy: One trial comparing different acupuncture needles and depth of needle insertion to assess the effect on incontinence reported that, after four courses of treatment, 78.1% participants in the elongated needle group had no incontinent episodes versus 40% in the filiform needle group (57 participants). This trial was assessed as unclear or high for all types of bias apart from incomplete outcome data. Combined intervention versus single intervention One trial compared a combined intervention (sensory motor biofeedback plus timed prompted voiding) against a single intervention (timed voiding). The combined intervention may make little or no difference to the number of participants continent after treatment (RR 0.55, 95% CI 0.06 to 5.21; 23 participants; equivalent to a decrease from 167 to 92 per 1000, 95% CI 10 to 868) or to the number of incontinent episodes (MD 2.20, 95% CI 0.12 to 4.28; 23 participants).Specific intervention versus attention control Physical therapy interventions: One study found TPTNS may make little or no difference to the number of participants continent after treatment compared to an attention control group undertaking stretching exercises (RR 1.33, 95% CI 0.38 to 4.72; 24 participants; equivalent to an increase from 250 to 333 per 1000, 95% CI 95 to 1000).

Authors' conclusions	There is insufficient evidence to guide continence care of adults in the rehabilitative phase after stroke. As few trials tested the same intervention, conclusions are drawn from few, usually small, trials. Cis were wide, making it difficult to ascertain if there were clinically important differences. Only four trials had adequate allocation concealment and many were limited by poor reporting, making it impossible to judge the extent to which they were prone to bias. More appropriately powered, multicentre trials of interventions are required to provide robust evidence for interventions to improve urinary incontinence after stroke.

1.1.4. Wang 2010 ☆

Wang Zai-Ling, Fu Li-Xiri, Xiong Jun. [Systematic review of therapeutic effect on acupuncture for treatment of urinary incontinence after stroke]. Journal of Clinical Acupuncture and Moxibustion 2010;26(1):39. [172522]

Objective	To evaluate the therapeutic effect of acupuncture in treatment of urinary incontinence after stroke in China.
Methods	Randomized contiolled trials (RCTs) involving acupuncture versus other methods in the treatment of urinary incontinence in China were identified from CNKI, VIP, WANFANG Database arid CBM. We also hand searched relevant journals and conference proceedings. Data were extracted and evaluated by two reviewers independently with a specially designed extraction form. The Cochrane Collaboration' s Rev- Man4. 2. 10 software was used for data analyses. At the same time, we do Fail - safe number analysis and use Funnel plot for the possible existence of publication bias.
Results	A total of **11 trials involving 1053 patients** were included. Meta - analyses showed that the total effective rate in the treatment group was better than control group: electrical - acupuncture group versus the group without acupuncture (RR = 2. 10,95% CI [1. 79,2. 45]); acupuncture group versus the group without acupuncture (RR:: 1. 29 ,95% CI [1. 19, 1 ,40]. Fail - safe number analysis revealed a relatively stable result. Funnel plot is asymmetrical ,which showed the possible existence of publication bias.
Conclusion	**Acupuncture is better than other treatments**, but further large - scale trials are required to define the role of acupuncture in the treatment of urinary incontinence after stroke in China.

1.1.5. Thomas 2008 Ø

Thomas L, Cross S, Barrett J, French B, Leathley M, Sutton C, Watkins C. Treatment of Urinary Incontinence after Stroke in Adults. Cochrane Database Syst Rev. 2008. [148085].

Objectives	Urinary incontinence can affect 40-60% of people admitted to hospital after a stroke, with 25% still having problems on hospital discharge and 15% remaining incontinent at one year. OBJECTIVES: To determine the optimal methods for treatment of urinary incontinence after stroke in adults.
Methods	SEARCH STRATEGY: We searched the Cochrane Incontinence and Stroke Groups specialised registers (searched 15 March 2007 and 5 March 2007 respectively), CINAHL (January 1982 to January 2007), national and international trial databases for unpublished data, and the reference lists of relevant articles. SELECTION CRITERIA: Randomised or quasi-randomised controlled trials evaluating the effects of interventions designed to promote continence in people after stroke. DATA COLLECTION AND ANALYSIS: Data extraction and quality assessment were undertaken by two reviewers working independently. Disagreements were resolved by a third reviewer.

Results	**Twelve trials with a total of 724 participants** were included in the review. Participants were from a mixture of settings, age groups and phases of stroke recovery.Behavioural interventionsThree trials assessed behavioural interventions, such as timed voiding and pelvic floor muscle training. All had small sample sizes and confidence intervals were wide.Specialised professional input interventionsTwo trials assessed variants of professional input interventions. Results tended to favour the intervention groups: in a small trial in early rehabilitation, fewer people had incontinence at discharge from hospital after structured assessment and management than in a control group (1/21 vs. 10/13; RR 0.06, 95% CI 0.01 to 0.43); in the second trial, assessment and management by Continence Nurse Advisors was associated with fewer participants having urinary symptoms (48/89 vs. 38/54; RR 0.77, 95% CI 0.59 to 0.99) and statistically significantly more being satisfied with care.Complementary therapy interventionsThree small trials all reported fewer participants with incontinence after acupuncture therapy (overall RR 0.44; 95% 0.23 to 0.86), but there were particular concerns about study quality.Pharmacotherapy and hormonal interventionsThere were three small trials that included groups allocated meclofenoxate, oxybutinin or oestrogen. There were no apparent differences other than in the trial of meclofenoxate where fewer participants had urinary symptoms in the active group than in the control group (9/40 vs. 27/40; RR 0.33, 95% CI 0.18 to 0.62).
Conclusions	Data from the available trials are **insufficient to guide continence care of adults after stroke**. However, there was suggestive evidence that professional input through structured assessment and management of care and specialist continence nursing may reduce urinary incontinence and related symptoms after stroke. Better quality evidence is required of the range of interventions that have been suggested for continence care after stroke.

1.1.6. Thomas 2005 ☆

Thomas L, Barrett J, Cross S, French B, Leathley M, Sutton C, Watkins C. Prevention and Treatment of Urinary Incontinence after Stroke in Adults. Cochrane Database Syst Rev. 2005. [140617].

Objectives	Urinary incontinence can affect 40-60% of people admitted to hospital after a stroke, with 25% still having problems on hospital discharge and around 15% remaining incontinent at one year. OBJECTIVES: To determine the optimal methods for prevention and treatment of urinary incontinence after stroke in adults.
Methods	SEARCH STRATEGY: We searched the Cochrane Incontinence and Stroke Groups specialised registers (searched 15 December 2004 and 26 October 2004, respectively), CINAHL (January 1982 to November 2004), national and international trial databases for unpublished data, and the reference lists of relevant articles. SELECTION CRITERIA: Randomised or quasi-randomised controlled trials evaluating the effects of interventions designed to promote continence in people after stroke. DATA COLLECTION AND ANALYSIS: Data extraction and quality assessment were undertaken by two reviewers working independently. Disagreements were resolved by a third reviewer.

Results	**Seven trials with a total of 399 participants** were included in the review. Participants were from a mixture of settings, age groups and phases of stroke recovery. No two trials addressed the same comparison.Four trials tested an intervention against usual care, including **acupuncture**, timed voiding, and two types of specialist professional intervention. One cross-over trial tested an intervention (oestrogen) against placebo. One trial tested a specific intervention (oxybutynin) against another intervention (timed voiding), and one trial tested a combined intervention (sensory-motor biofeedback plus timed voiding) against a single component intervention (timed voiding alone).Reported data were insufficient to evaluate acupuncture or timed voiding versus usual care, oxybutynin versus timed voiding, or sensory motor biofeedback plus timed voiding versus usual care. Evidence from a single small trial suggested that structured assessment and management of care in early rehabilitation may reduce the number of people with incontinence at hospital discharge (1/21 versus 10/13; RR 0.06, 95% CI 0.01 to 0.43), and have other benefits. Evidence from another trial suggested that assessment and management of care by Continence Nurse Practitioners in a community setting may reduce the number of urinary symptoms (48/89 versus 38/54; RR 0.77, 95% CI 0.59 to 0.99), and increase satisfaction with care.
Conclusions	There was **suggestive evidence that specialist professional input through structured assessment and management of care and specialist continence nursing may reduce urinary incontinence after stroke**. Data from trials of other physical, behavioural, complementary and anticholinergic drug interventions are insufficient to guide continence care of adults after stroke

1.2. Special Acupuncture Techniques

1.2.1. Electroacupuncture ☆

Tan 2015

Tan Zhi-Gao , Zhang Wei, Gong Hou-Wu, Qin Zuo-Ai, Zhong Feng ,Cao Yue. [A Meta-analysis on Effectiveness of Electro-acupuncture on Post-Stroke Urinary incontinence], Journal of Clinical Acupuncture and Moxibustion. 2015;31(2):74-7. [169600].

Objective	To evaluate the effectiveness of electro-acupuncture (EA)on post-stroke urinary incontinence (PSUI) by Meta-analysis.
Methods	Clinical randomized controlled trials of EA for PSUI were searched from database of Cochrane library, PubMed,CNKI, VIP and WanFang, and further retrieval was carried out concerning the reference of the related paper. Trials that EA was compared with positive drug, placebo, or blank (or both EA and A intervention were compared with A intervention) were collected. Quality assessment and Meta-ana1ysis would be made by using software RevMan5. 2. 1 1 for the included studies while the studies were of small clinical heterogeneity. If the studies' heterogeneity was significant, qualitative analysis would be made.
Results	A **total of 16 studies involving 1377 cases** were included in the study, with 15 better research homogeneity. Meta-analysis showed that the combined effect of the amount of OR=5.63,95%CI [3.35,9.47], P <0.01, and the difference was statistically significant, suggesting that EA treatment for PSUI had a better clinical efficacy than that in the control group. Thus EA treatment for PSUI could be considered to be with higher efficacy compared with other therapies. Funnel chart showed an asymmetry distribution of the research object, suggesting that there was a possibility of publication bias.

Conclusion	**EA treatment for PSUI shows a tendency that it is more effective than other treatments in terms of overall clinical effi**cacy, however, more high-quality researches in order to increase the strength of the evidence are still needed.

1.2.2. Moxibustion

1.2.2.1. Li 2021

Li X, Li ZM, Tan JY, Wang T, Chen JX, Chen X, Yang L, Suen LKP. Moxibustion for post-stroke urinary incontinence in adults: A systematic review and meta-analysis of randomized controlled trials. Complement Ther Clin Pract. 2021. [216618]. doi

Background and purpose	Urinary incontinence (UI) is a frequently identified complication among stroke survivors. Moxibustion is commonly used to treat post-stroke UI in Asian countries. This study aimed to synthesize the evidence of using moxibustion for post-stroke UI management.
Methods	Twelve databases were searched to identify randomized controlled trials (RCTs) using moxibustion to improve post-stroke UI management. Four Chinese journals were also manually screened for potentially eligible articles.
Results	Ten studies with a total of 719 participants and one completed trial without published results were included. Compared with “routine methods of treatment and/or care,” the meta-analyses revealed that moxibustion had superior effects in improving UI symptoms and alleviating the severity of UI.
Conclusion	This systematic review identified preliminary research evidence that moxibustion may be effective in managing the symptoms of post-stroke UI. More rigorously designed, large-scale RCTs are warranted to provide more robust evidence in this area.

2. Clinical Practice Guidelines

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

2.1. Brazilian Academy of Neurology 2022 Ø

Minelli C, Bazan R, Pedatella MTA, Neves LO, Cacho RO, Magalhães SCSA, Luvizutto GJ, Moro CHC, Lange MC, Modolo GP, Lopes BC, Pinheiro EL, Souza JT, Rodrigues GR, Fabio SRC, Prado GFD, Carlos K, Teixeira JJM, Barreira CMA, Castro RS, Quinan TDL, Damasceno E, Almeida KJ, Pontes-Neto OM, Dalio MTRP, Camilo MR, Tosin MHS, Oliveira BC, Oliveira BGRB, Carvalho JJF, Martins SCO. Brazilian Academy of Neurology practice guidelines for stroke rehabilitation: part I. Arq Neuropsiquiatr. 2022 Jun;80(6):634-652. https://pubmed.ncbi.nlm.nih.gov/35946713.

Neurogenic lower urinary tract dysfunction and fecal incontinence: For post-stroke NLUTD, behavioral interventions, specialized professional care, complementary therapies such as **acupuncture (electroacupuncture and moxibustion)**, transcutaneous electrical stimulation, physical therapy techniques, pharmacotherapy, and a combination of interventions have uncertain benefits. (Recommendation IIb-B)