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Acupuncture for stress urinary incontinence in adults (Review)

Wang Y, Zhishun L, Peng W, Zhao J, Liu B

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[Intervention Review]

Acupuncture for stress urinary incontinence in adults

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ABSTRACT

Background

The use of acupuncture for stress urinary incontinence is increasing in frequency, especially in Asian area. However, its effectiveness and side effects have not been evaluated.

Objectives

To assess the effectiveness and side effects of acupuncture for stress urinary incontinence in adults.

Search methods

We searched the Cochrane Incontinence Group Specialised Register (searched 28 January 2013), EMBASE, AMED, Chinese Biomedical Literature Database (CBM), Chinese Acupuncture Trials Register and China National Knowledge Infrastructure (CNKI) (all searched 20 February 2013). In addition, we searched the reference lists of relevant articles and contacted authors and trialists in the field.

Selection criteria

Randomised and quasi-randomised controlled trials of acupuncture interventions without other treatments for the management of stress urinary incontinence for adults.

Data collection and analysis

Two review authors independently assessed eligibility, trial quality and extracted data. We meta-analysed data where appropriate.

Main results

We identified 17 possibly eligible studies but only one small trial with 60 women met our inclusion criteria. The trial compared acupuncture versus midodrine, a drug for treating hypotension. The risk of bias was high as there was no concealment of randomised allocation, and there was no blinding of assessment of outcome. In addition, it was not possible to blind participants or health providers to the interventions. The statistical methods were not described.

More women improved in the acupuncture group (73% with acupuncture versus 33% with midodrine; risk ratio (RR) 2.20, 95% confidence interval (CI) 1.27 to 3.81) but the cure rates were low and not statistically significantly different (13% versus 7%; RR 2.00, 95% CI 0.40 to 10.11). There were adverse events in the drug group only.

Authors' conclusions

The effect of acupuncture for stress urinary incontinence for adults is uncertain. There is not enough evidence to determine whether acupuncture is more effective than drug treatment.

PLAIN LANGUAGE SUMMARY

Acupuncture for stress urinary incontinence in adults

Stress urinary incontinence is a common disease among older people, especially women. The symptoms are leakage of urine when the person coughs, laughs or exercises. It affects social, psychological, physical and financial aspects of life. Acupuncture is used widely in Asian countries for this condition and frequency of use is increasing worldwide. From the viewpoint of traditional Chinese medicine, acupuncture could improve the symptoms of stress urinary incontinence by reinforcing *qi* (the vital substance constituting human body) and promoting recovery of the bladder's function. This review included only one small trial with 60 women. There was not enough evidence to assess the effects of acupuncture for stress urinary incontinence compared with drug treatment, and high-quality randomised controlled trials are needed.

BACKGROUND

Urinary incontinence can be classified as stress urinary incontinence (SUI), urgency urinary incontinence and mixed urinary incontinence (Haylen 2010; Mariappan 2005). SUI is the most common type in women (Wilson 1996). Prevalence of this disease is different in various parts of the world. A study conducted in Canada reported that an estimated 4% to 35% of adult women are effected by SUI (Luber 2004). In Beijing, the prevalence is 22.9% in adult women (Ge 2009). In a survery conducted in the USA 49.6% respondants reported urinary incontinence symptoms. Of those reporting incontinence symptoms; pure stress incontinence was reported by 49.8% (Reynolds 2011). The current prevalence of SUI in men is below 1% (Hampel 2004). SUI affects social, psychological, physical and financial aspects of life. Over 80% of women decline any treatment, and less than 1% undergo surgical management (Miller 2007).

Therapy for SUI includes behavioural therapy, physiotherapy, medications, devices and surgery (Rogers 2008). Duloxetine is the first licensed drug for the treatment of SUI, but it is poorly tolerated (overall 146/222 (66%) women discontinued therapy due to adverse effects or lack of efficacy) with high discontinuation rates (Duckett 2007; Mariappan 2005). The majority of women initially offered drug therapy will eventually undergo surgery for their incontinence (Vella 2008). Surgery is an effective option (Ogah 2009; Wu 2007). Pelvic floor muscle training (PFMT) is the recommended conservative therapy for SUI and it is more effective than no treatment, placebo drug or inactive control treatments for women with SUI (Dumoulin 2010). It is also the initial option in the treatment of post-surgical SUI for men (Börgermann 2010; Campbell 2012). However, PFMT therapy needs long-term adherence. There is a clinically unmet need and a mandate for effective, lower cost, non-invasive treatment, especially for people living in low-income regions. Acupuncture, as a minimally invasive treatment, is reported to be effective for SUI (Kim 2008), but its efficacy and safety have not been confirmed.

Description of the condition

The International Continence Society defines SUI as the complaint of involuntary loss of urine on effort or physical exertion, or on sneezing or coughing (Abrams 2002; Haylen 2010). Theoretically, two types of SUI are thought to exist: hypermobility of an otherwise healthy urethra and intrinsic deficiency of the sphincter itself (Hinoul 2009). Standard clinical assessment includes history taking, physical examination, frequency/volume charts and urine analysis. Some authors describe women with the symptoms of SUI alone (diagnosis made on clinical evaluation without urodynamics) (Ogah 2009). The cause of SUI in men is iatrogenic after prostate surgery or traumatic damage to the external urethral sphincter (Börgermann 2010). For women, recognised risk factors for SUI include white race, obesity, pregnancy and childbirth, particularly vaginal, as compared with caesarean, delivery (Rogers 2008).

Description of the intervention

Acupuncture is a branch of traditional Chinese medicine (TCM) and it has a history of thousands of years. It cures disease by stimulating points with needles.

Acupuncture, as a conservative method, includes many methods, such as body acupuncture, scalp acupuncture, electroacupuncture, warm acupuncture, fire needle, auricular acupuncture and elongated needle.

- Body acupuncture: a generalised term for acupuncture and is in common use with reference to acupuncture therapy. It means treating disease by applying acupuncture to points along the channels of the human body.
- Scalp acupuncture: a therapeutic method for treating diseases associated with the nerve system by using acupuncture needles along the surface of the head.
- Electroacupuncture: a therapeutic method combining acupuncture with electrical stimulation (Peng 2007), where two electrodes from an electrical stimulator are attached to the needle handles.
- Warm acupuncture: a needle with a firing moxa cylinder (a penetrating heat therapy which involves the burning of mugwort) attached to it, which can dispel coldness.
- Fire needle: a needle is heated on a firing spirit lamp until the needle is red and hot, and then skin is pricked with the needle rapidly.
- Auricular acupuncture: stimulates points on the ear with a needle or other instruments.
- Elongated needle acupuncture: uses a needle that is usually longer than 5 *cun* (125 mm) (Gao 2002).

This review concentrates on body acupuncture, scalp acupuncture, electroacupuncture, warm acupuncture, fire needle and elongated needle. It excludes cupping, acupressure, laser acupuncture and dry needle as laser acupuncture and dry needle are not routine or traditional acupuncture methods in China, and cupping and acupressure are different therapies from acupuncture in TCM.

How the intervention might work

Although Western medicine does not recognise the mechanism of action, acupuncture is becoming increasingly popular in high-income countries as a therapy for a wide variety of disorders, most of which are chronic and difficult to manage with conventional treatment (Langevin 2001). For SUI, it is not yet known how acupuncture produces its effects (e.g. whether on muscles, nerves, blood or energy). It is possible that it could desensitise the bladder through inhibition of capsaicin-sensitive C-fibre activation (Hino 2010).

According to TCM theory, SUI is mainly caused by deficiency of *qi* (also known as *chi* or *ch'i* and often translated as 'life force' or 'energy flow') of the kidneys, which will lead to the bladder's failure to control urine. There is a recording in *Huangdi Neijing* (also known as *The Inner Canon of Huangdi* or *Yellow Emperor's Inner Canon,* an ancient Chinese medical text) (Wang 2003), that "bladder's failure in controlling the urine leads to incontinence" and in *Zhubing Yuanhoulun* (General Treatise on Causes and Manifestations of All Diseases) (Ding 1992), "incontinence is due to deficiency of kidney *qi"*. The working mechanism of acupuncture is thought to be in regulating *qi* and blood, and co-ordinating *yin* and *yang* (used to describe how polar opposites or seemingly contrary forces are interconnected and interdependent in the natural world) (Xu 2002). By needling at some points on the bladder meridian and the kidney meridian, acupuncture can reinforce *qi* and promote recovery of the bladder's function, and finally improve the symptoms of SUI.

Why it is important to do this review

SUI is a common problem for women and also markedly impairs the quality of life of affected men. Surgery is an effective therapy; however, it has risks (such as injury to the bladder or urethra, urinary retention, incomplete cure of incontinence and severe infection) that some people may find unacceptable. Conservative therapy (i.e. PFMT) has long-term adherence problems and its value remains uncertain for post-prostatectomy incontinence in men (Hunter 2007). It is important to establish whether acupuncture is a good choice for people who do not want surgery, and whether it is as effective as other conservative or pharmacological therapies. Although there are reports showing that acupuncture is effective for SUI (Bi 2007; Lim 1995), the efficacy and safety of acupuncture for SUI has not been systematically reviewed. Another Cochrane review covers acupuncture for urinary incontinence after stroke (Thomas 2009).

OBJECTIVES

Determine the effects and safety of acupuncture for SUI in adults.

The following comparisons will be addressed:

1. acupuncture versus placebo or no treatment;
2. acupuncture versus any other treatment.

METHODS

Criteria for considering studies for this review

Types of studies

Randomised and quasi-randomised (allocating participants to different forms of care that is not truly random; e.g. allocation by date of birth, day of the week, medical record number, month of the year or the order in which participants are included in the study) controlled trials.

Types of participants

Participants of any age or ethnicity, with a diagnosis of SUI (according to the definition of the International Continence Society) were eligible for inclusion. People with SUI diagnosed with or without urodynamics were eligible for included in this review.

Types of interventions

Interventions include scalp acupuncture, body acupuncture, electroacupuncture, warm acupuncture, elongated needle, auricular acupuncture and fire needle.

Cupping, acupressure, laser acupuncture and dry needle acupuncture are excluded here, for laser acupuncture and dry needle acupuncture are not routine or traditional acupuncture methods in China, and cupping and acupressure are different therapies from acupuncture in TCM.

Comparison interventions include placebo, no treatment and any active treatment (i.e. conservative therapies, pharmacological therapies or surgery).

Types of outcome measures

Primary outcomes

Participant symptoms

1. Number of participants with incontinence.
2. Number of incontinent episodes over 24 hours (indicated by bladder charts, e.g. mean number of episodes).
3. Severity of incontinence (e.g. index score).
4. Perception of lack of improvement in continence (as reported by participant or carer).

Secondary outcomes

Physical measures

1. Pad tests of quantified leakage.
2. Volume of urine loss.
3. Total and mean number of pads used.

Clinicians' observations

1. Urodynamics.
2. Objective failure rates after treatment and at follow-up (number not cured versus cured by objective test).

Quality of life

1. General health status measures (e.g. Short Form 36).
2. Specific instrument designed to assess urinary problems (such as distress, anxiety).

Socioeconomic measures

1. Costs of interventions.
2. Cost-effectiveness of interventions.

Adverse events

1. Number of fainting episodes during acupuncture.
2. Number of haematomas during treatment.
3. Number of burns and local infection.

Search methods for identification of studies

We imposed no language or other restrictions on any of the searches.

Electronic searches

This review drew on the search strategy developed for the Cochrane Incontinence Group as a whole. We used the Cochrane Incontinence Group Specialised Register to identify relevant trials. The methods are described under the Group's module in *The Cochrane Library.* The register contains trials identified from the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, MEDLINE in Process, CINAHL, and handsearching of journals and conference proceedings. Appendix 1 lists the terms used when searching the Cochrane Incontinence Group Specialised Register. We searched the register on 28 January 2013.

We also searched EMBASE, AMED, Chinese Biomedical Literature Database (CBM), Chinese Acupuncture Trials Register and China National Knowledge Infrastructure (CNKI) on 20 February 2013. Appendix 1 lists the search terms used.

Searching other resources

We conducted the following additional searches: checking all reference lists of identified trials and other relevant articles; contacting authors and trialists in the field to identify any additional data or trials.

Data collection and analysis

Selection of studies

Two review authors considered titles and abstracts identified from the search for inclusion. We evaluated all possibly eligible studies for appropriateness for inclusion without prior consideration of the results. We listed all excluded studies in the Characteristics of excluded studies table with reasons for their exclusion.

Data extraction and management

Two review authors extracted data independently using a standard form containing prespecified outcomes. When data had been collected but not reported, we sought clarification from the trialists. We processed the included trial data as described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011). We resolved differences of opinions by discussion or consultation with a third review author.

Assessment of risk of bias in included studies

Two review authors independently used The Cochrane Collaboration's 'Risk of bias' tool to assess methodological quality. We classified studies as 'low', 'unclear' and 'high' risk of bias.

We considered the following six domains of bias:

- sequence generation;
- allocation concealment;
- blinding (or masks);
- incomplete data assessment;
- selective outcome reporting;
- other sources of bias.

We resolved differences of opinions by discussion or consultation with a third review author or the editorial team.

Measures of treatment effect

We based analyses on available data from the included trial relevant to the comparisons and outcomes of interest. For categorical outcomes, we related the numbers reporting an outcome to the numbers at risk in each group to calculate a risk ratio (RR) with 95% confidence interval (CI). For continuous variables, we used means and standard deviations to calculate a mean difference (MD) with 95% CI.

Unit of analysis issues

The individual participant was the unit of analysis (unit to be randomised for interventions to be compared).

Dealing with missing data

Trials using intention-to-treat analysis were included if the participants were analysed in the arms to which they had been randomised, irrespective of whether they received that management. For trials with missing data, we based primary analysis on available data.

Assessment of reporting biases

If there were more than 10 studies in the analysis, we would have used a funnel plot to assess publication bias.

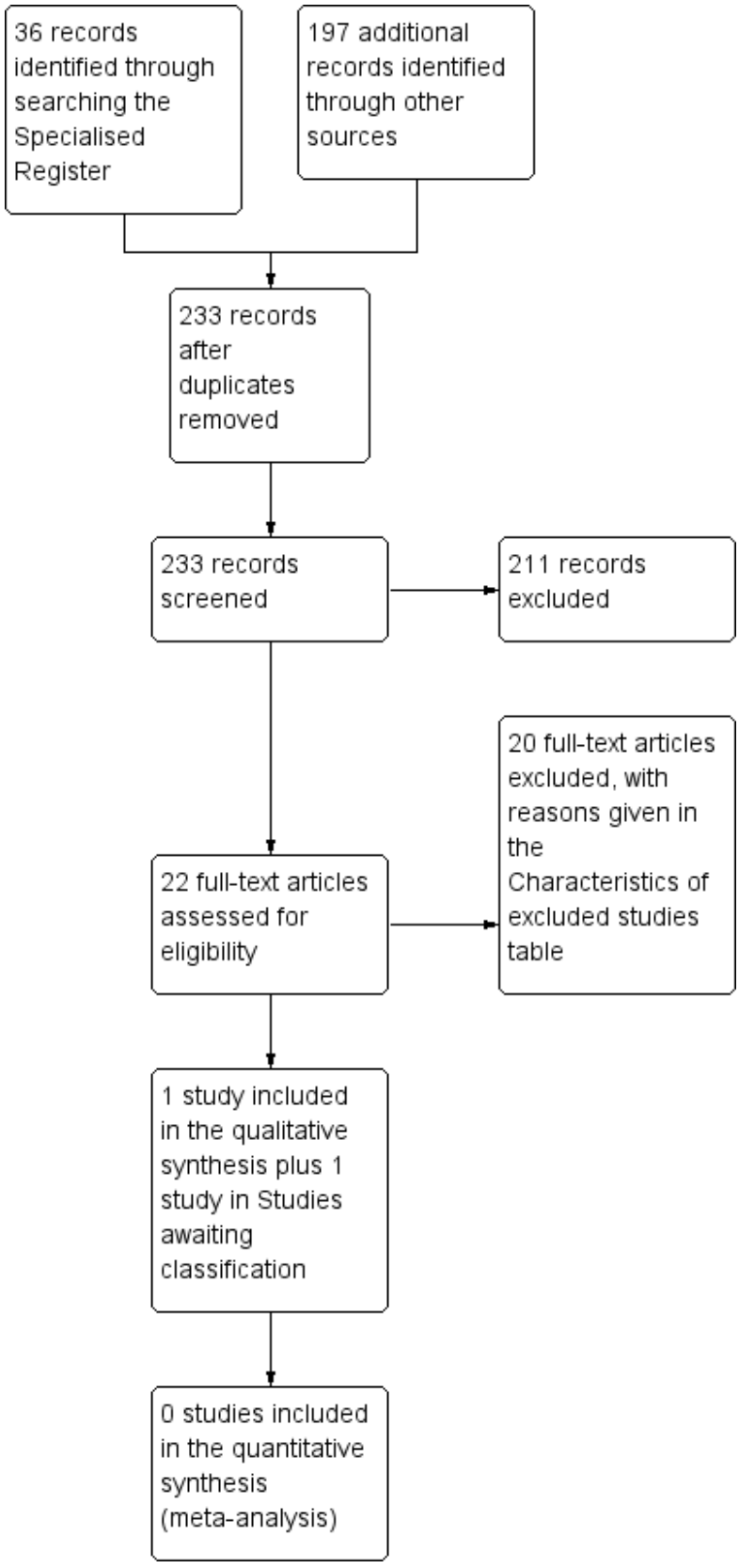
RESULTS

Description of studies

Results of the search

We identified 233 studies. All but 32 of the studies were published in Chinese. We identified 22 possibly eligible studies and we excluded 211 studies because they were not randomised controlled trials or they did not include acupuncture or the participants did not have SUI. Of the remaining 22 studies, we included one study (Characteristics of included studies), assigned one for further assessment (Characteristics of studies awaiting classification) and excluded 20 for other reasons (Characteristics of excluded studies). Figure 1 shows the flow of literature through the assessment process in a PRISMA flowchart.

Figure 1. PRISMA study flow diagram.



Included studies

We included one study (Characteristics of included studies table).

Design

We included only one randomised controlled trial (Bi 2007). It compared electroacupuncture versus midodrine. A random number table was used, but there was no allocation concealment. It was not possible to blind the participants or the carers. The investigator who was in charge of outcome assessment and the statistician were not blinded to allocation. Another trial (Shen 2012) is awaiting assessment for inclusion.

Comparator

Midodrine is a vasopressor/antihypotensive agent with an action on the alpha-adrenoceptors of the arteriolar and venous vasculature, producing an increase in vascular tone and elevation of blood pressure. It is not licensed for the treatment of SUI.

Location/setting

The trial was held in China.

Sample size

The trial enrolled 60 women and the sample size calculation was not reported.

Length of treatment

The length of treatment was 6 to 12 weeks.

Follow-up and outcomes

The trial made assessments at the end of treatment but no follow-up assessment was reported. Reported outcome measures included perception of cure and improvement in continence.

Excluded studies

We excluded 20 studies: 6 studies compared one type of acupuncture therapy versus another type; or there were 7 studies with several interventions in the treatment group or the control group, or both. Of the 20 studies, two compared acupuncture plus another therapy versus therapy alone. We excluded these trials, as the effect of acupuncture could not be assessed.

Risk of bias in included studies

Allocation

We judged randomisation concealment to be inadequate (high risk of bias).

Blinding

As the trial intervention was acupuncture and the comparator a drug, blinding of participants or doctors was not possible.

Incomplete outcome data

The trial reported no withdrawals or dropouts, and all participants completed the trial.

Selective reporting

We found no selective reporting.

Other potential sources of bias

The trial did not describe the statistics adequately and the trial was small.

Effects of interventions

Acupuncture versus placebo or no treatment

We found no trials.

Acupuncture versus active treatment

The one small included trial compared electroacupuncture versus a drug (midodrine) (Bi 2007).

Acupuncture seemed to be better than the drug alone in terms of number of women improved (73% with acupuncture versus 33% with midodrine; RR 2.20, 95% CI 1.27 to 3.81; Analysis 2.1; Figure 2), but not for cure rates (13% with acupuncture versus 7% with midodrine; RR 2.00, 95% CI 0.40 to 10.11; Analysis 2.2; Figure 3).

Figure 2. Forest plot of comparison: 2 Acupuncture versus any other treatment, outcome: 2.1 Number of women improved (subjective).

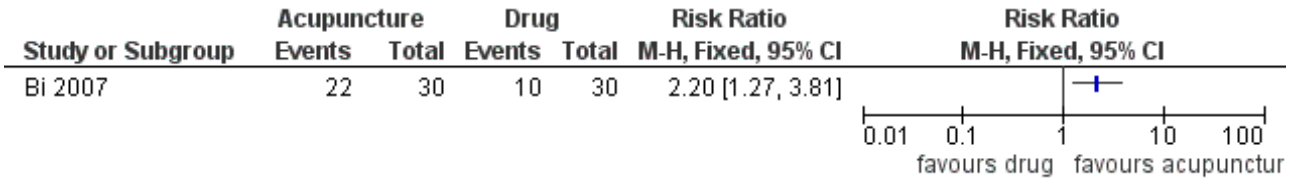
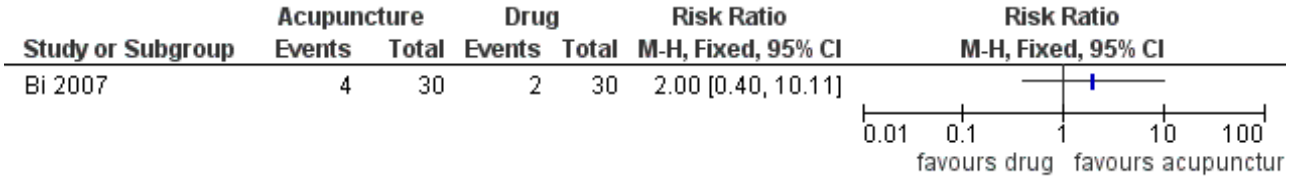


Figure 3. Forest plot of comparison: 2 Acupuncture versus any other treatment, outcome: 2.2 Number of women cured (subjective) cured rate.



The trial reported 23 adverse events (such as headache, dizziness and thirst) in the drug group compared with no adverse events in the acupuncture group.

There was no information about whether the effects of acupuncture persisted after the end of the course of treatment, as there was no follow-up.

DISCUSSION

Summary of main results

We identified 22 eligible trials but only one small trial met our inclusion criteria (Bi 2007). This was a small trial with 60 women, which compared acupuncture versus a drug midodrine. Acupuncture seemed to result in a higher improvement rate than the drug but few women were cured in either group and there was no statistically significant difference in the cure rate.

We classified one trial as awaiting assessment (Shen 2012), and we excluded 20 trials. The excluded trials in this review included comparisons of acupuncture with no treatment, drug, PFMT and another kind of acupuncture. In some trials, the interventions of the treatment group were acupuncture combined with foot massage, Chinese herb decoction or PFMT. However, none of them could be included because they were not randomised controlled trials or because acupuncture was combined with another treatment.

Overall completeness and applicability of evidence

The included trial does not provide enough evidence to assess the effects of acupuncture for SUI in adults.

Quality of the evidence

It is a randomised controlled trial with small sample size and no randomisation concealment or blind assessment of outcome. The results reported only numbers of participants cured/improved. The quality of the study was low and, therefore, the risk of bias was high.

The trial was at high risk of bias for randomisation procedure as there was no concealment of allocation, although a random number table was used to generate the randomised sequence. The author of this trial provided this information.

Because of the nature of acupuncture as an intervention, it was not possible to blind the participants or acupuncturists to the actual treatments received. This trial did not undertake blind assessments of outcome and allocation concealment. It did not provide a description of the statistical analysis used.

Potential biases in the review process

We considered there to be no potential biases in the review process.

Agreements and disagreements with other studies or reviews

We found no disagreements with other studies or reviews.

AUTHORS' CONCLUSIONS

Implications for practice

The available data were too few to suggest that acupuncture is useful in the treatment of stress urinary incontinence compared with a drug (midodrine) and the cure rate was low.

Implications for research

There are many acupuncture trials of stress urinary incontinence published in Chinese but their quality is not satisfactory. Larger randomised controlled trials of high quality are needed. Trials should use standardised methods of randomisation and adequate blinding of collection of outcome measures. In particular, trials should use standardised outcomes, such as validated questionnaires to assess participant's views of their incontinence and quality of life, pad tests of quantified leakage, volume of urine loss, total and mean number of pads, urodynamics, and objective failure rates after treatment and at follow-up. Trials of acupuncture for male stress incontinence are rare and could be considered in future.

ACKNOWLEDGEMENTS

The author of one trial provided information about the randomisation process (Bi 2007).

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CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Bi 2007

Methods	Design: randomised controlled trial
	Allocation concealment: no
	Blinding procedures: no blinding
	Duration: 6-12 weeks
	Follow-up: no follow-up
	Withdrawal/dropouts: none
	Intention-to-treat: yes
Participants	60 women
	Inclusion criteria: stress urinary incontinence
	Exclusion criteria: no

Bi 2007 *(Continued)*

	Mean age: 52.8 years
Interventions	A (30 women): electroacupuncture B (30 women): midodrine hydrochloride
Outcomes	Subjective cure rate: A) 13.3%, B) 6.7% Subjective improved rate: A) 73.3%, B) 33.3% Adverse effects: A 0/30, B 23/30 (headache, dizziness and thirst)
Notes	Small sample size

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random number table
Allocation concealment (selection bias)	High risk	No concealment
Blinding of participants and personnel (performance bias) All outcomes	High risk	No blinding
Blinding of outcome assessment (detection bias) All outcomes	High risk	No blinding assessment
Incomplete outcome data (attrition bias) All outcomes	Low risk	No incomplete data
Selective reporting (reporting bias)	Low risk	No selective reporting
Other bias	Unclear risk	Small sample size

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Bi 2011	The intervention was warm acupuncture combined with foot massage and pelvic floor muscle training
Chen 2003	Acupuncture versus another type of acupuncture
Chen 2010	Acupuncture combined with treatment A versus acupuncture combined with treatment B
Gao 2011	The intervention was acupuncture combined with another treatment

Study	Reason for exclusion
He 2011	Not a randomised controlled trial
Jung 2008	Some important data were absent
Le 2008	Acupuncture combined with treatment B versus treatment B combined with C
Ni 2008	Acupuncture plus herb, moxibustion and PFMT versus drug plus PFMT
Shang 2010	Acupuncture compared with another kind of acupuncture
Sun 2011	The intervention was acupuncture combined with another treatment
Tang 2009	Acupuncture plus moxibustion and PFMT versus PFMT
Wang 2006	Acupuncture compared with another kind of acupuncture
Xiong 2005	Acupuncture plus PFMT versus herb
Yang 2004	Acupuncture compared with another type of acupuncture
Yang 2008	Not a randomised controlled trial
Yang 2010	Acupuncture compared with another type of acupuncture
Yang B 2010	Not a randomised controlled trial
Yang T 2004	Acupuncture compared with another type of acupuncture
Yue 2008	Acupuncture compared with another type of acupuncture
Zheng 1992	Not a randomised controlled trial. Acupuncture compared with another type of acupuncture

PFMT: pelvic floor muscle training.

Characteristics of studies awaiting assessment *[ordered by study ID]*

Shen 2012

Methods	Design: randomised controlled trial Allocation concealment: no Blinding procedures: no blinding Duration: 5-7 days Follow-up: no follow-up Withdrawal/dropouts: none Intention-to-treat: yes
Participants	120 men Inclusion criteria: transurethral resection of the prostate Exclusion criteria: yes

Shen 2012 *(Continued)*

	Mean age: not reported
Interventions	A (30 men): electroacupuncture B (30 men): tolterodine tartrate C (30 men): electroacupuncture and tolterodine tartrate D (30 men): control (pethidine and anisodamine if necessary)
Outcomes	Bladder contraction: A) 0.58 (24 h); 1.82 (24-48 h); 1.15 (48-72 h) B) 0.59 (24 h); 1.80 (24-48 h); 1.13 (48-72 h) C) 0.46 (24 h); 1.55 (24-48 h); 0.82 (48-72 h) D) 0.76 (24 h); 2.82 (24-48 h); 2.76 (48-72 h) Bladder contraction duration: A) 6.81 (24 h); 7.65 (24-48 h); 6.89 (48-72 h) B) 6.54 (24 h); 7.27 (24-48 h); 6.43 (48-72 h) C) 5.43 (24 h); 4.40 (24-48 h); 3.88 (48-72 h) D) 8.46 (24 h);9.83 (24-48 h); 10.87 (48-72 h) Adverse effects: no
Notes	

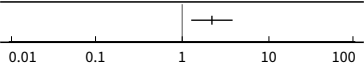
DATA AND ANALYSES

Comparison 2. Acupuncture versus any other treatment

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Number of women improved (subjective)	1		Risk Ratio (M-H, Fixed, 95% CI)	Totals not selected
2 Number of women cured (subjective) cured rate	1		Risk Ratio (M-H, Fixed, 95% CI)	Totals not selected

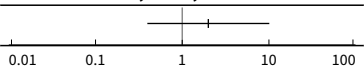
Analysis 2.1. Comparison 2 Acupuncture versus any other treatment, Outcome 1 Number of women improved (subjective).

Study or subgroup	Acupuncture n/N	Drug n/N	Risk Ratio M-H, Fixed, 95% CI	Risk Ratio M-H, Fixed, 95% CI
Bi 2007	22/30	10/30		2.2[1.27,3.81]



Analysis 2.2. Comparison 2 Acupuncture versus any other treatment, Outcome 2 Number of women cured (subjective) cured rate.

Study or subgroup	Acupuncture n/N	Drug n/N	Risk Ratio M-H, Fixed, 95% CI	Risk Ratio M-H, Fixed, 95% CI
Bi 2007	4/30	2/30		2[0.4,10.11]



APPENDICES

Appendix 1. Search terms used for the literature search

Cochrane Incontinence Group Specialised Register

The terms used to search the Cochrane Incontinence Group Specialised Register were:

(({DESIGN.CCT*} OR {DESIGN.RCT*}) AND {TOPIC.URINE.INCON*} AND ({INTVENT.PHYS.ACUPUNCTURE*} OR {INTVENT.COMPLEMENTARY.ACUPUNCTURE*}))

(All searches were of the keyword field of Reference Manager 12, Thomson Reuters). Date of last search: 28 January 2013.

Other sources:

Searches were run by the review authors for this review in: EMBASE, AMED, Chinese Biomedical Literature Database (CBM), Chinese Acupuncture Trials Register and China National Knowledge Infrastructure (CNKI). The search terms used were:

TOPIC.incontinence

and INTVENT. acupuncture /needling

and DESIGN clinical trials

In some Chinese databases, there are no randomised controlled trial or controlled clinical trial choices in the DESIGN section, so we used the term 'clinical trials'. The search date was 20 February 2013.

CONTRIBUTIONS OF AUTHORS

All authors contributed to the writing of this review.

- Yang Wang initiated the study and drafted the review. She unified differences of opinion and conducted quality assessment.
- Weina Peng and Zhishun Liu provided methodological perspectives, quality assessment or data extraction.
- Jie Zhao searched for trials, extracted and analysed data.
- Baoyan Liu assessed the methodological quality of eligible trials.

DECLARATIONS OF INTEREST

None declared.

SOURCES OF SUPPORT

Internal sources

- No sources of support supplied

External sources

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- The National Institute for Health Research, UK.

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INDEX TERMS

Medical Subject Headings (MeSH)

Acupuncture Therapy [*methods]; Adrenergic alpha-1 Receptor Agonists [therapeutic use]; Midodrine [therapeutic use]; Randomized Controlled Trials as Topic; Urinary Incontinence, Stress [*therapy]

MeSH check words

Adult; Female; Humans