Chapter 11
Is Acupuncture or Moxibustion Better than a Sham or Placebo-Treatment?

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Abstract The objective of this chapter is to provide an overview of the specific effects of acupuncture and moxibustion for cancer-related symptoms. Three databases, MEDLINE, AMED and EMBASE, were searched from their inception through February 2012. The selection of studies, data extraction, and validations were performed independently by two reviewers. The risk of bias was assessed using the guidelines of the Cochrane collaboration. A total of seven randomized controlled trials comparing real acupuncture and sham acupuncture were identified. The majority of the included studies had a low risk of bias. In two studies which assessed hot flash symptoms in breast cancer patients, acupuncture showed specific effects compared with sham acupuncture. In two studies that evaluated the efficacy of acupuncture on radiation therapy-induced xerostomia, acupuncture improved the subjective and objective outcomes of xerostomia significantly more than a sham-treatment. One study that tested the anti-emetic effect of acupuncture demonstrated that the number of patients experiencing nausea did not decrease significantly in the real acupuncture group. In one study that evaluated the efficacy of acupuncture on aromatase inhibitor-induced joint symptoms in breast cancer patients, the Western Ontario and McMaster Universities Osteoarthritis Index pain score was significantly improved in the real acupuncture group. Another study that tested the effect of electroacupuncture treatment on radiation therapy-induced fatigue demonstrated that there was no significant improvement in the real acupuncture group. This chapter concluded that there is currently no conclusive evidence whether acupuncture or moxibustion are better than placebo for treating on various cancer-related symptoms or not.

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11.1 Introduction

Acupuncture and moxibustion are interventions from eastern Asian medicine, including traditional Chinese medicine (TCM) and traditional Korean medicine, that are currently popular in various clinical areas, such as rheumatology (Ernst and Lee 2010b; Choi et al. 2011), neurology (Kong et al. 2010), rehabilitation medicine (Wong et al. 2011) and gynecology (Borud and White 2010; Ernst et al. 2011; Kang et al. 2011). Acupuncture and moxibustion are also used as alternative or additive therapies for the symptomatic management cancer (Ernst and Lee 2010a; Chan 2011; Paley et al. 2011). According to recent reports, the prevalence of acupuncture usage among cancer patients has been suggested to be close to 31% (Filshie and Hester 2006; Gansler et al. 2008). Considering that many cancer survivors may experience many kinds of bothersome, chronic symptoms, such as nausea and vomiting, fatigue, and pain, during and after cancer therapy managing such symptoms would be a significant advance. Cancer patients need effective and safe interventions for palliative care, and non-drug therapies such as acupuncture and moxibustion might be good alternatives compared with pharmacological treatments (Cassileth et al. 2007; Wesa et al. 2008).

Yet evidence of the effectiveness of acupuncture and moxibustion in cancer treatment remains uncertain (Vickers 2004). The efficacy of acupuncture and moxibustion needs to be evaluated to determine whether these interventions are superior to placebos.

Thus, the aim of this systematic review is to summarize and critically evaluate all sham-controlled, randomized trials of acupuncture and moxibustion as a symptomatic treatment for cancer.

11.2 Methods

11.2.1 Data Sources

The databases that were searched from their respective inceptions through to February 29, 2012 were MEDLINE, AMED and EMBASE. The search phrase used was "(acupuncture AND cancer) OR (moxibustion AND cancer)". In addition, our own files and relevant journals (FACT—Focus on Alternative and Complementary Therapies) were manually searched. Full papers of all articles were obtained and thoroughly read.

11.2.2 Study Selection

All articles were included that reported a randomized clinical trial (RCT) in which patients with any type of cancer were treated with needle acupuncture with or without

electrical stimulation to relieve the symptoms of cancer. Acupuncture was defined as the insertion of needles into the skin and underlying tissues at particular sites, known as acupuncture points, for therapeutic or preventive purposes. Trials testing other forms of acupuncture, such as laser acupuncture or auricular acupuncture without needling, were excluded. To be included, a trial had to compare needle acupuncture with various forms of sham acupuncture in a parallel or cross-over design. Only publications in English were included. Dissertations and abstracts were excluded. Trials in which the sample size was less than ten patients in each arm and trials that used less than 4 weeks treatment were also excluded. Trials evaluated only the outcomes related to immunological or other surrogate endpoints were excluded.

11.2.3 Data Extraction and Risk of Bias Assessment

All articles were read by two independent reviewers (MSL and THK), who extracted data from the articles according to predefined criteria. The risk of bias was assessed using the Cochrane classification for eight criteria: random sequence generation, allocation concealment, patient blinding, assessor blinding, reporting of drop-out or withdrawal, intention-to-treat analysis, selective outcome reporting and other potential biases. Disagreements were resolved by discussion between the two reviewers (MSL and THK), with the opinion of a third reviewer (EE) sought if necessary.

11.2.4 Outcome Measures and Data Synthesis

In the absence of clinical heterogeneity, the results were synthesized in a meta-analysis. The mean change in outcome measures compared with the baseline was used to assess differences between the intervention and the control groups. Weighted mean differences or standardized mean differences and 95% confidence intervals (CIs) were calculated using Cochrane Collaboration's software (Review Manager version 5.0, Copenhagen: The Nordic Cochrane Centre). Where necessary, we contacted the primary authors to acquire or verify data. Differences compared to the sham control were considered relevant. The variance of the change was inferred using a correlation factor of 0.5. Cochrane's Q-test and I^2 were used to assess heterogeneity. Heterogeneity was assumed if the χ^2 test was $p < 0.10$ and the I^2 was greater than 75%. In the case of heterogeneity, we attempted to identify and explain the heterogeneity using subgroup analysis. Subgroup analysis was performed for subsets of studies and symptoms of cancer. Where possible, publication bias was assessed using a funnel plot. *Post hoc* sensitivity analyses were performed to test the robustness of the overall effect.

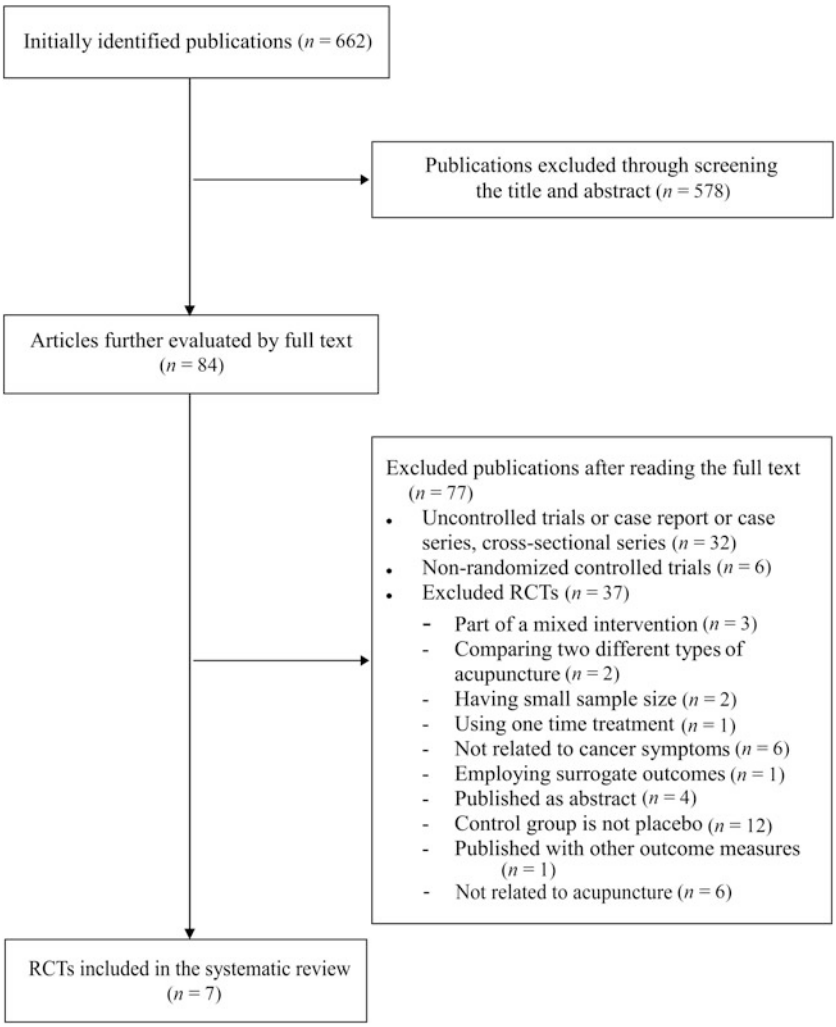

Fig. 11.1 Flow chart of the publication selection process. *RCT* randomized controlled trial

11.3 Results

11.3.1 Study Description

The searches identified 664 potentially relevant articles of which 578 were excluded after screening the abstracts (Fig. 11.1). A total of 84 articles were read by two independent reviewers in full and 76 were excluded: 38 were not RCTs, 39 RCTs were excluded because three were RCTs but tested mixed interventions of treatments,

two compared two different types of acupuncture, two had a small sample size, two employed a one-time treatment, six were not related to cancer symptoms, one used surrogate outcomes, four were published as abstracts, one was a publication of the same trial with different outcomes, twelve did not use sham controls and two were not related to acupuncture.

Therefore, 7 RCTs met our inclusion criteria (Blom et al. 1996; Deng et al. 2007; Balk et al 2009; Hervik and Mjaland 2009; Crew et al. 2010; Enblom et al. 2012; Meng et al. 2012) (Table 11.1). These studies targeted a range of different symptoms including radiation-induced nausea (Enblom et al. 2012), hot flashes in breast cancer patients (Deng et al. 2007; Hervik and Mjaland 2009), aromatase inhibitor-induced joint pain (Crew et al. 2010), xerostomia (Blom et al. 1996; Meng et al. 2012) and cancer-related fatigue (Balk et al. 2009). Four studies originated from the US (Deng et al. 2007; Balk et al. 2009; Crew et al. 2010; Meng et al. 2012), two from Sweden (Blom et al. 1996; Enblom et al. 2012) and one from Norway (Hervik and Mjaland 2009).

Specific sensations following acupuncture stimulation, called 'deqi', were mentioned in all of the trials (Table 11.2). Deqi was regarded as the arrival of Qi, which is considered to be essential for clinical efficacy according to ancient acupuncture theory.

11.3.2 Risk of Bias

The majority of the included studies showed a low risk of bias in each domain. Among the seven RCTs, five studies (Deng et al. 2007; Balk et al. 2009; Crew et al. 2010; Enblom et al. 2012; Meng et al. 2012) appropriately conducted sequence generation and allocation concealment (Table 11.3). All of the included studies used sham acupuncture as a control with blind participants. Only three studies (Deng et al. 2007; Crew et al. 2010; Enblom et al. 2012), however, clearly reported the blinding methods of the outcome assessors. Two studies (Blom et al. 1996; Hervik and Mjaland 2009) did not appropriately report drop-out or withdrawal. In one RCT, statistical analysis was conducted on an intention-to-treat basis (Meng et al. 2012). Two studies were suspected of not reporting all the outcomes that had been originally planned to be reported (Deng et al. 2007; Crew et al. 2010).

11.3.3 Outcomes

11.3.3.1 Nausea-related to Radiation Therapy

One RCT tested the effects of acupuncture on nausea related to radiation therapy in patients with various cancers compared to non-penetrating acupuncture (Enblom et al. 2012). There were no differences between five weeks of acupuncture and sham

Table 11.1 Summary of the included studies

First author (year)	Sample size/condition Mean age (years) M/F	Main cancer treatment	The target symptom for the intervention	Intervention group (deqi, needle retention, frequency and duration, measurement time of primary endpoint, number of participants)	Control group (control intervention, number of participants)	Main outcomes	Intergroup differences (MD or RR [95% CI])
Enblom et al. (2012)	215/Cancer of abdomen or pelvic cavity 64 35/180	Radiation therapy	Nausea	(A) Real acupuncture (inducing deqi by twirling and lifting needles, 30 min, 2–3 times/week, 5 weeks, $n = 109$)	(B) Sham acupuncture, (Park sham device at no acupuncture points, $n = 106$)	1) Number of patients experiencing nausea 2) Mean number of days with nausea 3) Patient number of antiemetic consumption at least once	1) RR,1.1 [0.9, 1.4] 2) MD,1.4 [−1.1, 3.9] 3) RR,1.1 [0.8, 1.6]
Hervik (2008)	59/Breast cancer A:54; B:52 0/59	Breast cancer surgery	Hot flashes	(A) Real acupuncture plus estrogen antagonist treatment (inducing deqi manually, 30 min, 1–2 times/week, 10 weeks, $n = 30$)	(B) Sham acupuncture plus estrogen antagonist treatment (minimal penetrating at non-acupuncture points, $n = 29$)	1) Hot flash frequency during day time 2) Hot flash frequency at night 3) Kupperman index	1) MD, −7.0 [−10.4, −3.6] 2) MD, −2.8 [−4.6, −1.1] 3) MD, −4.4 [−6.8, −2.0]
Deng et al. (2007)	72/Breast cancer A:55; B:56 0/72	n.r.	Hot flashes	(A) Real acupuncture (inducing deqi manually, 20 min, 2 times/week, 4 weeks, $n = 42$)	(B) Sham acupuncture (Streitberger sham device at non-acupuncture points, $n = 30$)	Hot flash frequency per day	MD, −2.0 [−4.7, 0.7]

Table 11.1 (continued)

First author (year)	Sample size/condition Mean age (years) M/F	Main cancer treatment	The target symptom for the intervention	Intervention group (deqi, needle retention, frequency and duration, measurement time of primary endpoint, number of participants)	Control group (control intervention, number of participants)	Main outcomes	Intergroup differences (MD or RR, ES [95% CI])
Crew et al. (2010)	43/Breast cancer A:58; B:57 0/43	Aromatase inhibitor	Joint symptoms	(A) Real acupuncture (inducing deqi at body acupuncture points, 30 min, 2 times/week, 6 weeks, $n = 23$)	(B) Sham acupuncture (superficial acupuncture at non-acupuncture points, $n = 20$)	1) WOMAC (pain) 2) WOMAC (stiffness) 3) WOMAC (function) 4) WOMAC (normalized) 5) BPI-SF (worst pain) 6) FACT-G (physical well-being)	1) MD, −132.0 [−178.5, −85.6] 2) MD, −63.0 [−91.4, −34.58] 3) MD, −304.0 [−485.5, −122.5] 4) MD, −75.0 [−106.5, −43.6] 5) MD, −2.5 [−3.7, −1.3] 6) MD, 4.4 [0.6, 8.2]
Blom et al. (1996)	38/Malignant tumor of the head and neck A:65; B:64 A:14/6; B:12/6	Radiation therapy	Xerostomia	(A) Real acupuncture (inducing deqi manually, 20 min, 2 times/week, 14 weeks, $n = 20$)	(B) Sham acupuncture (superficial needling at non-acupuncture points, $n = 18$)	1) UWSFR 2) SSFR	1) MD, 0.04 [–0.00, 0.07] 2) MD, 0.24 [0.07, 0.40]

Table 11.1 (continued)

First author (year)	Sample size/condition Mean age (years) M/F	Main cancer treatment	The target symptom for the intervention	Intervention group (deqi, needle retention, frequency and duration, measurement time of primary endpoint, number of participants)	Control group (control intervention, number of participants)	Main outcomes	Intergroup differences (MD or RR, ES [95% CI])
Meng et al. (2012)	22/Nasopharyngeal carcinoma A:46; B:47 A:9/1; B:11/0	Radiation therapy	Xerostomia	(A) Real acupuncture (inducing deqi manually, 20 min, 3 times/week, 6 weeks, $n = 10$)	(B) Sham acupuncture, (Park sham device, $n = 11$)	1) XQ score 2) MDASI-SYM 3) MDASI-INT 4) MDASI-HN 5) UWSFR 6) SSFR	1) MD, −19.3 [−22.0, −15.8] 2) MD, −5.9 [−8.5, −3.3] 3) MD, −3.7 [−5.3, −2.2] 4) MD, −10.9 [−12.9, −8.9] 5) MD, 0.4 [0.3, 0.5] 6) MD, 0.5 [0.3, 0.7]
Balk et al. (2009)	27/Various cancers A:54; B:54 0/27	Radiation therapy	Fatigue	(A) Electrical acupuncture (inducing deqi by electrical stimulation, 30 min, 1–2 times/week, 6 weeks, $n = 16$)	(B) Sham acupuncture with sham electrical acupuncture device (Park sham device at the same points, $n = 11$)	1) FACIT-F 2) CES-D 3) CRFDS	1) MD, 3.0 [−4.3, 10.3] 2) MD, 2.8 [−7.7, 13.4] 3) MD, 5.1 [−25.7, 35.9]

BPI-SF brief pain inventory short form, *CES-D* center for epidemiological studies depression scale, *CRFDS* cancer-related fatigue distress scale, *FACIT-F, G* functional assessment of chronic illness therapy-fatigue, general, *HN* head and neck subscale, *INT* interference subscale, *MD* mean difference, *MDASI* MD Anderson symptom inventory, *n.r.* not reported, *NS* not significant, *PLEK* plasma leucine-enkephalin, *QoL* quality of life, *RR* risk ratio, *SSFR* stimulated salivary flow rates, *SYM* symptom subscale, *UWSFR* unstimulated whole salivary flow rates, *VAS* visual analogue scale, *WOMAC* Western Ontario and McMaster Universities osteoarthritis index, *XQ score* xerostomia questionnaire

Table 11.2 Summary of treatment points and other information related to treatment

First author (Year)	Acupuncture method	Total sessions	Acupuncture points	Rationales	Adverse events
Enblom et al. (2012)	TCM acupuncture (physiologists)	n.r.	Fixed points (2) bilateral: PC6	n.r.	Bleeding (Real: 51) Tiredness (Real: 15; Sham:15) Dizziness (Real:8; Sham:5) Needle scratched the skin (Sham:10)
Hervik (2008)	TCM acupuncture (1 physiotherapist)	15	Fixed points (8) Unilateral: LR3,GB20, LU7, KI3, SP6, CV4, PC7 and LR8	TCM textbooks	n.r.
Deng et al. (2007)	True acupuncture (several licensed acupuncturists)	8	Fixed points (19) Bilateral: GB20, BL13, PC7, HT6, KI7, ST36, SP6, Ear shen men and Ear sympathetic point Unilateral: GV14	Previous reports Expert opinion Standard acupuncture textbook	Very minor adverse effects (slight bleeding or bruising at the needle site) Grade 1 adverse effects:14/560 sessions
Crew et al. (2010)	TCM acupuncture plus National Acupuncture Detoxification Association protocol (1 acupuncturist)	12	Semi-fixed points Body acupuncture points: TE5, GB41, GB34, LI4, ST41 and KI3 Ear acupuncture points: Ear shenmen, Ear kidney, Ear liver, Ear upper lung, and Ear sympathetic points The joint-specific acupuncture points: (1) knee (SP9, SP10, ST34)	Standard acupuncture protocol	Pain (Real:3)

Table 11.2 (continued)

First author (Year)	Acupuncture method	Total sessions	Acupuncture points	Rationales	Adverse events
			(2) fingers (SI5, SI3, ba xie, LI3) (3) lumbar (GV3, GV8, BL23) (4) shoulder (TE15, TE14, SI10) (5) hip (GB30, GB39) (6) wrist (TE4, LI5)		
Blom et al. (1996)	TCM acupuncture	24	Individualized points Body acupuncture (5–8 points): GV20, ST7, ST3, ST6, ST5, SI17, LI18, PC6, HT7, SI3, LI4, LI10, LI11, ST36, LR3, SP3, SP6, SP8, KI4, KI5 and KI 7 Ear acupuncture (2–4 points): Ear shenmen, Ear sympathetic, Ear kidney, Ear mouth, Ear stomach, Ear GI parotis and Ear subcortex	TCM textbooks	A few cases of hematoma at the acupuncture points and tiredness
Meng et al. (2012)	TCM acupuncture (1 acupuncturist)	18	Fixed points (13) Body acupuncture points: CV24, bilateral LU7 and KI6 Ear acupuncture points: bilateral Ear shenmen, Ear point zero, Ear salivary gland 2-prime and Ear larynx	n.r.	None
Balk et al. (2009)	TCM acupuncture (1 acupuncturist)	4–12	Fixed points (10) Bilateral: KI3, SP6, LI6, ST36 and CV6	Expert opinion	None

TCM traditional Chinese medicine, *n.r.* not reported

Table 11.3 Risk of bias assessment[a]

First author (year)	Random sequence generation	Allocation concealment	Patient blinding	Assessor blinding	Reporting drop-out or withdrawal[b]	Intention-to-treat analysis[c]	Selective outcome reporting	Other potential biases
Enblom et al. (2012)	L	L	L	L	L	H	L	L
Hervik (2008)	U	U	L	U	U	U	L	L
Deng et al. (2007)	L	L	L	L	L	H	H	H
Crew et al. (2010)	L	L	L	L	L	H	H	H
Blom et al. (1996)	U	U	L	U	H	H	L	H
Meng et al. (2012)	L	L	L	U	L	L	L	L
Balk et al. (2009)	L	L	L	U	L	U	L	L

H high risk of bias, *L* low risk of bias, *U* unclear (uncertain risk of bias)

[a]Domains of quality assessment based on the Cochrane tools for assessing the risk of bias

[b] Two domains referring to 'incomplete outcome data' in the Cochrane tools for assessing the risk of bias

[c] This study had a baseline imbalance in the subjective outcome values

acupuncture for reducing the number of patients experiencing nausea, the mean number of days with nausea and the amount of anti-emetic consumption.

11.3.3.2 Hot Flashes in Breast Cancer Patients

Two RCTs compared the effects of acupuncture with sham acupuncture in breast cancer patients (Deng et al. 2007; Hervik and Mjaland 2009). One RCT showed favorable effects of acupuncture for reducing hot flash frequency during both the daytime and nighttime compared to minimal penetrating sham acupuncture (Hervik and Mjaland 2009). In contrast, the other RCT failed to show any beneficial effects of acupuncture for hot flash frequency per day during the treatment and after the treatment period compared with non-penetrating sham acupuncture (Deng et al. 2007).

11.3.3.3 Joint Symptoms in Breast Cancer Patients

One RCT tested the effects of acupuncture on aromatase inhibitor-induced joint pain in breast cancer patients compared with sham acupuncture (Crew et al. 2010). The acupuncture group experienced more pain reduction using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Brief Pain Inventory Short Form (BPI-SF) indices compared with superficial penetrating acupuncture. Furthermore, this study demonstrated beneficial effects on joint function using the WOMAC and on physical well-being using the Functional Assessment of Chronic Illness Therapy-General scale.

11.3.3.4 Xerostomia-induced by Radiotherapy

Two RCTs compared acupuncture with superficial needling and non-penetrating acupuncture as sham techniques (Blom et al. 1996; Meng et al. 2012). Both of these studies showed no significant intergroup differences regarding unstimulated and stimulated salivary flow rates. One RCT (Meng et al. 2012) showed beneficial effects of acupuncture on subjective symptoms measured by a patient-reported questionnaire, while the other RCT (Blom et al. 1996) failed to do so.

11.3.3.5 Cancer-related Fatigue

One RCT compared the effects of acupuncture for cancer-related fatigue in various cancer patients compared with non-penetrating acupuncture (Balk et al. 2009). The acupuncture group showed improvement in fatigue using the Functional Assessment of Chronic Illness Therapy-Fatigue scale, but there was no significant difference between the two groups.

We had originally intended to submit the above data to a formal meta-analysis. However, the statistical and clinical heterogeneity of the studies prohibited us from doing so.

11.3.3.6 Adverse Events

Six RCTs mentioned adverse events in detail (Blom et al. 1996; Deng et al. 2007; Balk et al. 2009; Crew et al. 2010; Enblom et al. 2012; Meng et al. 2012). One study reported adverse events for both real and sham acupuncture (Enblom et al. 2012). Bleeding was reported only in the real acupuncture group, but the participants of both groups equally reported tiredness and dizziness at the same time. Hematoma at the acupuncture points and mild dizziness were reported in two studies (Blom et al. 1996; Deng et al. 2007). One RCT reported pain at the acupuncture points (Crew et al. 2010). There was no adverse event in two of the studies (Balk et al. 2009; Meng et al. 2012).

11.4 Discussion

This systematic review identified only a few sham-controlled acupuncture RCTs and no sham-controlled moxibustion studies. Their results are contradictory and, in total, fail to provide convincing evidence for the effectiveness of acupuncture in cancer care. Several individual studies suggested a positive effect of real acupuncture on cancer-related conditions, but all of these trials had small sample sizes. Overall, our findings provide no convincing evidence that acupuncture is beneficial beyond a placebo-response.

Our previous overview suggested that there are clinically beneficial effects of acupuncture for chemotherapy-induced nausea and vomiting, while the evidence is mixed for xerostomia and cancer pain (Choi et al. 2012). The results of the present systematic review are similar to the overview. The overview, however, expressed concern regarding the poor methodological quality of the included primary studies (Choi et al. 2012).

No sham-controlled trials of moxibustion met our inclusion criteria. If we assume that the effects of moxibustion could occur by stimulating acupuncture points with heat, sham moxibustion paradigms may include treating outside acupuncture points on non-acupuncture points or preventing heat stimulation on acupuncture points or areas. Two sham moxibustion devices, which are designed to minimize heat transfer, have been described to date (Park et al. 2009; Wang et al. 2009). These methods could help achieve patient and practitioner blinding in future studies.

Several sham acupuncture methods have been developed. These methods range from puncturing the skin outside acupoints, inserting the needle at non-acupoints or superficially puncturing the skin without stimulation. In the present systematic review, no conclusive evidence of the superiority of real acupuncture was found compared with sham acupuncture regardless of the acupuncture technique employed.

Non-penetrating sham acupuncture was reported to be more effective than placebo tablets for subjective pain outcomes (Kaptchuk et al. 2006). This observation may suggest that the effects of needle acupuncture with or without electric stimulation could be non-specific by nature. The effectiveness of acupuncture for hot flashes (Deng et al. 2007; Hervik and Mjaland 2009) and xerostomia (Blom et al. 1996; Meng et al. 2012) are mixed. One trial suggested positive effects of acupuncture in reducing joint symptoms (Crew et al. 2010).The other two studies failed to relieve radiation induced nausea (Enblom et al. 2012) and fatigue (Balk et al. 2009). Most of the studies were too small to generate reliable findings.

The results of this systematic review are consistent with several possible interpretations. Acupuncture might be ineffective, the studies might have been inadequately designed or the treatment had not been optimally administered or sham acupuncture is also an effective treatment. For example, the number of treatment sessions could have been too small to generate a significant effect, treatment could have been suboptimal, or the protocol applied in the acupuncture group might not have been suitable for treating the specific cancer-related symptoms.

The rationale for the selection of acupuncture points was stated in 5 RCTs (Blom et al. 1996; Deng et al. 2007; Balk et al. 2009; Hervik and Mjaland 2009; Crew et al. 2010). The authors quoted expert opinions, standard acupuncture protocols, or previous studies or recommendations from textbooks to justify their point selection. Needle stimulation causing a typical needle sensation has been claimed to be important for reaching the maximum effects of acupuncture on pain. This needle sensation (Deqi) was considered in all of the included RCTs.

One argument for using acupuncture for the management of the symptoms of cancer patients might be that it is safer than other therapeutic options. Six RCTs assessed adverse events of acupuncture treatment (Blom et al. 1996; Deng et al. 2007; Balk et al. 2009; Crew et al. 2010; Enblom et al. 2012; Meng et al. 2012), and one RCT did not (Hervik and Mjaland 2009). Mild adverse effects of acupuncture were noted for both real and sham acupuncture. Relative to those of drug therapies, however, these are mild, infrequent and perhaps even negligible.

The limitation of our systematic review pertain to the potential incompleteness of the evidence reviewed. We aimed to identify all studies on the topic. The distorting effects of publication bias and location bias on systematic reviews are well documented (Ernst and Pittler 1997; Pittler et al. 2000; Rothstein et al. 2005). We restricted our review to RCTs published in English, and only a relatively small number of databases were searched. Therefore, there may be relevant publications which we missed. Further limitations include the paucity and the often suboptimal quality of the primary data.

11.5 Conclusion

The evidence from sham-controlled RCTs of acupuncture or moxibustion for treating several symptoms of cancer is limited by the paucity and poor quality of the primary data. Collectively, the RCTs available to date fail to convincingly demonstrate the

effectiveness of acupuncture or moxibustion in cancer care. Further research is required to investigate whether there are specific benefits of these treatments for cancer patients.

Future RCTs of acupuncture or moxibustion should adhere to accepted methodological standards. The reviewed studies have a number of problems, e.g. expertise of practitioners, the pluralism of acupuncture, frequency and duration of treatment, the consideration of point specificity, validated sham intervention methods, employing validated primary outcome measures and adequate statistical tests, and heterogeneous comparison groups. Even though it is difficult to blind practitioner to treatment, employing assessor blinding and allocation concealment are important for reducing bias.

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