The Mae On Project: using acupuncture for symptom relief and improved quality of life for people living with HIV and AIDS in rural Thailand

Laura Louie,1 Nopporn Pathanapornpandh,2 Unchalee Pultajuk,3 Robert Kaplan,4 Ian Hodgson,5 Lawrence Maund,6 Heather Greenlee7

ABSTRACT
Acupuncture in combination with antiretroviral therapies is a potentially useful treatment for HIV-related symptom relief in resource-poor settings. Traditional Chinese medicine has a long history of being used to enhance immune function. In the setting of HIV, Chinese traditional medicine allows for symptom treatment without adding extra medications to a complex drug regime. This paper provides details of a project at Mae On Hospital in rural northern Thailand where allopathic/conventional treatments are used in tandem with acupuncture. A preliminary evaluation of the project suggests that an integrated approach to symptom relief is viewed positively by respondents receiving acupuncture, though further studies are required to confirm the association between acupuncture and symptom relief. The project also demonstrates the feasibility of developing a cost-effective acupuncture programme using local healthcare staff.

INTRODUCTION
The research literature includes a number of reviews examining the benefits of complementary and alternative medicine (CAM) therapies in the context of HIV care,1–4 including acupuncture, massage therapy and stress management. These reviews suggest that CAM therapies may improve quality of life (QoL) in HIV infected individuals. Acupuncture may have positive effects,5 and there is evidence that it reduces the severity of symptoms such as peripheral neuropathy,6 general malaise,7 and improves sleep quality.8 These benefits are likely to have significant impact on the affected person, for poorly managed symptoms may be associated with disease progression, decreased medication adherence and lower QoL for people living with HIV and AIDS.9

HIV AND AIDS IN THAILAND
The first case of AIDS in Thailand was recorded in 1984, and widespread transmission of the virus is believed to have accelerated in the late 1980s, especially among injection drug users and sex workers. The disease soon proliferated among other populations and became a growing concern for healthcare workers and government officials who initiated successful educational and treatment programmes in the early 1990s.10 At the end of 2005, the population of Thailand was around 65 million; 560,000 adults and 16,000 children were estimated to be living with HIV, and 21,000 individuals had died of AIDS-related diseases that year. The northern region of Thailand was found to have the highest prevalence of HIV in the country. At the end of June 2005, the number of people in Thailand undergoing antiretroviral therapy (ART) was estimated to be between 67,000 and 82,000.10

The Mae On Project
There is clearly a need to provide effective therapeutic strategies to help improve QoL of people living with HIV in resource poor settings, which was one of the key reasons for establishing the Mae On Project. The project was launched in April 2004 with three main objectives:

1. To develop a pilot programme to train healthcare staff in acupuncture as adjunctive treatment for people living with HIV and AIDS at Mae On Hospital in northern Thailand.
2. To create a free clinic at Mae On Hospital to provide acupuncture for people living with HIV and AIDS.
3. To undertake an evaluative pilot study using quantitative and qualitative data to assess the efficacy of acupuncture on QoL, the symptoms of chronic HIV infection and the side effects of ART.

Funding for the project was from charitable sources in Canada. A key benefit was that additional resources required for implementing the project were relatively small, limited to purchasing acupuncture needles, moxa sticks, electroacupuncture machines, as well as some furniture to set up the acupuncture clinic. This paper describes the Mae On Project and presents the results of a pilot evaluation assessing the effects of acupuncture on QoL, chronic HIV infection symptoms and side effects of ART.

Establishing the acupuncture clinic
Mae On Hospital is located in rural northern Thailand and forms the hub of six off-site health centres located in the surrounding region, serving a population of 20,000. This hospital treats an average case-load of 130 HIV infected individuals per year.

Two Thai nurses volunteered for training in acupuncture. Both nurses had received their Bachelor of Science in Nursing and had worked more than 10 years at Mae On Hospital. Neither had previous training in any form of complementary or alternative medicine (CAM). Acupuncture training and clinical supervision were provided by two Thai and one Western traditional Chinese medicine (TCM) practitioners. The nurses received 110 h of didactic training in acupuncture over 4.5 months in Chiang Mai, Thailand. The training sessions were held in part outside their normal work schedule and were conducted in two phases. The first phase focused on the fundamentals of TCM, acupuncture points and meridians, and diagnosis using TCM criteria. Phase two emphasised acupuncture therapeutics and clinical skills. Didactic training was followed by clinical training and consisted of 7 h of supervised weekly acupuncture for people living with HIV and AIDS over 6 months.

The clinic was established in mid-2004 and was soon treating 32 regular attendees on a weekly basis in a group out-patient setting. Clients were at various stages of HIV-disease and had a wide range of symptoms associated with HIV including pain, peripheral neuropathy and dizziness. All clients had access to ART if required, as outlined by the guidelines issued by the Thai government’s Department of Public Health.

EVALUATION
In order to collect data on the feasibility of creating an acupuncture clinic for people living with HIV in rural Thailand and on the effects of acupuncture in the treatment of HIV and ART-related symptoms, an evaluative pilot study was undertaken during 2004 and 2005. The study was a non-randomised, single-arm observational study conducted over 12 months,
which collected demographic information and patient-reported outcomes using questionnaires and semistructured interviews.

**Participant recruitment**

Twenty-seven HIV-positive participants were recruited into the study through HIV healthcare providers in the Mae On and neighbouring Sangkhampaeng and Doi Saket districts. Respondent recruitment was governed by appropriate ethical guidelines, shaped by the professional bodies of all the researchers, and in accord with the ethical framework determined by Declaration of Helsinki (World Medical Association, 2000). In order to ensure protection of human subjects, all participants provided informed consent for participation in this programme, all data were kept in secure locations and all data were deidentified during analysis.

An introductory meeting at Mae On Hospital was conducted for those interested in volunteering for the project, consisting of a short explanation and demonstration of acupuncture. Opportunity was given for participants to ask questions and voice concerns, and respondents who consented to being part of the study signed informed consent forms. No remuneration was offered although all participants were given the option to continue acupuncture, free of cost, following the study.

The eligibility criteria for the study were as follows: HIV-positive status confirmed by medical history and HIV antibody test; age 17 years or older; CD4 lymphocyte count ≥100 cells/mm measured within 60 days prior to study entry; willingness and ability to provide informed consent; willingness and ability to understand and follow protocol for the duration of the study; and willingness and ability to maintain a consistent lifestyle routine including diet, exercise, medications, dietary supplements and sleep for the duration of the study. All participants gave informed consent in the Thai language and clearly understood that access to the free acupuncture treatment was not determined by their participation in the study.

**Intervention**

Tongue and pulse assessments and TCM diagnosis were recorded for each participant on every acupuncture visit. The acupuncture points used were based on the principles of acupuncture and TCM as well as the participant’s individual clinical presentation. Each treatment was individualised over the course of the study to accommodate the participants’ changing symptoms and health concerns, meaning that no participant received the same acupuncture point combination. Treatment consisted of ear and body acupuncture as well as indirect moxibustion, electroacupuncture and tuina massage. Sterile, disposable, single-use acupuncture needles were used on all participants.

**Collection of quantitative data**

Data were collected at three time points prior to acupuncture being initiated (4 months before acupuncture started (baseline), 2 months before acupuncture started and just before acupuncture started), and at three time points after acupuncture initiation (2 months, 4 months and 6 months after acupuncture started). Questionnaires were completed by participants at the study site and study staff were available to provide clarification if needed. The baseline questionnaire collected demographic information including age and health history. All questionnaires included a QoL scale and the Memorial Symptom Assessment Scale (MSAS).

The 27-item QoL scale was based on the World Health Organization Quality of Life Assessment, which assessed patient feelings and experiences of physical, emotional and social factors affecting QoL. Using a Likert scale with five categories (none, little, moderate, much, very much). These included satisfaction with health, appearance, self, home, environment and public healthcare; feelings of sadness, security and safety; ability to cope with every day life activities and work; capacity to maintain friendships; and concern for financial matters.

The MSAS is a multi-dimensional scale that measured the frequency, severity and distress of 32 physical and psychological symptoms in chronic disease. The scale has three subscales: the 12-item physical symptom subscale, which includes lack of energy, pain, nausea, vomiting, dizziness, weight loss, lack of appetite, constipation, dry mouth, change in taste, weight loss, feeling bloated and dizziness), as well as ‘presence versus absence’ of selected physical symptoms. The MSAS was governed by appropriate ethical guidelines, shaped by the professional bodies of all the researchers, and in accord with the ethical framework determined by Declaration of Helsinki (World Medical Association, 2000). In order to ensure protection of human subjects, all participants provided informed consent for participation in this programme, all data were kept in secure locations and all data were deidentified during analysis.

Analyses for the measures at 2 and 4 months after acupuncture initiation were not performed due to a large amount of missing data. QoL was defined as the average response across 27 items (0-4 Likert scale, with higher values indicating better QoL). Symptoms were defined according to the MSAS Physical Symptom Subscale score (average of the frequency, severity and distress associated with 12 prevalent physical symptoms: lack of appetite, lack of energy, pain, feeling drowsy, constipation, dry mouth, nausea, vomiting, change in taste, weight loss, feeling bloated and dizziness), as well as ‘presence versus absence’ of selected physical symptoms.

Content analysis was used to reveal underlying themes in the qualitative data, a useful way to elicit robust constructs from interview material.

**RESULTS**

**Participant demographics**

Sixty-seven per cent of 27 subjects had a diagnosis of AIDS; 19% of subjects were HIV asymptomatic as defined by the Thai government’s Department of Public Health. The mean age was 55.9 years (range 28–49 years), 74% were women and 78% were on ART. The mean duration since HIV infection was 6.1 years, and the mean duration since AIDS diagnosis was 2.4 years. The highest level of education for the majority of the patients was
grade six (around 15 years of age), which is the mandatory minimum education level in Thailand. (See table 1.)

**Participation retention and acceptability of acupuncture**

While recruiting for the study, all potential participants were very willing to try acupuncture and expressed enthusiasm to try a new therapy for HIV or ART-related symptoms, without charge. The biggest concern noted was the discomfort that may be caused by the insertion of acupuncture needles.

There was an 83% visit attendance rate over the 27-week treatment period. Fourteen per cent of participants discontinued acupuncture treatments after 3–4 months; these participants reported feeling better and could no longer miss work to attend acupuncture sessions. Subjects who missed the occasional acupuncture treatment reported it was due to work, lack of transportation, family emergencies and sickness.

**Quantitative outcomes**

Six month follow-up questionnaires were completed by 85% (n=23) of participants. Those who did not complete the questionnaires were contacted by phone and reported that they were feeling better from the acupuncture treatments and/or were too busy with work to come to the clinic.

There was no overall change in QoL during the course of the study. Subjects reported slightly fewer physical symptoms on the QoL scale after 6 months of acupuncture, although changes were modest and not statistically significant. Among the 17 subjects on ART, the number reporting pain reduced from 13 to seven.

**Table 1** Characteristics of HIV-positive participants enrolled in Mae On Project (n=27)

<table>
<thead>
<tr>
<th>Age</th>
<th>N (%) or mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 35 years</td>
<td>15 (55.6%)</td>
</tr>
<tr>
<td>&gt; 35 years</td>
<td>12 (44.4%)</td>
</tr>
<tr>
<td>Mean age, years</td>
<td>35.9 (5.5)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>20 (74.1%)</td>
</tr>
<tr>
<td>Male</td>
<td>7 (25.9%)</td>
</tr>
<tr>
<td>Mean duration of HIV infection, years</td>
<td>6.1 (4.5)</td>
</tr>
<tr>
<td>AIDS Diagnosis</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>9 (33.3%)</td>
</tr>
<tr>
<td>Yes</td>
<td>18 (66.7%)</td>
</tr>
<tr>
<td>Mean time since AIDS diagnosis, years</td>
<td>2.4 (1.8)</td>
</tr>
</tbody>
</table>

**Table 2** Memorial symptom assessment scale (MSAS) at preacupuncture* and 6-month postacupuncture visits

<table>
<thead>
<tr>
<th>Reported symptoms</th>
<th>Preacupuncture</th>
<th>6 months postacupuncture</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>% with symptom</td>
<td>% with symptom</td>
</tr>
<tr>
<td>Pain</td>
<td>22</td>
<td>68%</td>
</tr>
<tr>
<td>Nausea</td>
<td>22</td>
<td>41%</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>20</td>
<td>80%</td>
</tr>
<tr>
<td>Lack of energy</td>
<td>20</td>
<td>45%</td>
</tr>
<tr>
<td>Numbness</td>
<td>21</td>
<td>52%</td>
</tr>
<tr>
<td>Difficulty sleeping</td>
<td>22</td>
<td>50%</td>
</tr>
<tr>
<td>Dizziness</td>
<td>22</td>
<td>59%</td>
</tr>
<tr>
<td>MSAS physical symptom score (12 items)</td>
<td>23.1 (22.9)</td>
<td>14.0 (16.2)</td>
</tr>
</tbody>
</table>

Content analysis of follow-up interviews revealed three themes

**Relief of symptoms and complaints:** 89% of participants reported improvement in their sense of wellness and emotional wellbeing. Those who reported no change commented that they had no emotional concerns or worries when acupuncture started or during the treatments.

**Improved sense of wellness and emotional wellbeing:** 89% of participants reported improvement in their sense of wellness and emotional wellbeing. Those who reported no change commented that they had no emotional concerns or worries when acupuncture started or during the treatments.

**Increased ability to work more thereby decreasing financial worries:** 48% reported an improvement in this area.

Quotations taken from the interview data confirm some of the personal aspects of acupuncture as experienced by the patients:

Prior to having acupuncture I was aware of the symptoms and this would cause me some stress. But now that these symptoms have eased, almost gone, I don’t think...
about this anymore and consequently feel emotionally and spiritually better. And I can also look to the future with greater hope because I don’t have to worry about these symptoms anymore.

Since doing acupuncture I really firmly believe my life has improved. My physical symptoms are all gone, [and I have] more concentration. I feel that my health is better than those who don’t have HIV, and I feel it’s a combination of ARVs and acupuncture.

Acupuncture increases my hopes and aspirations and gives me encouragement, strengthens me. I have something to lean on. If I don’t come here, I feel like I’ve left something out of my life.....

Since acupuncture, I don’t think about getting more sick, because I feel ‘normal’. But if I get sick, I feel confident that acupuncture can help.

DISCUSSION

Few studies evaluate the use of CAM in developing countries. Preliminary data following evaluation of this project suggest a possible association between acupuncture, symptom relief and improved overall QoL in people living with HIV and AIDS in northern Thailand.

This project demonstrates that a successful acupuncture training programme and acupuncture clinic for those living with HIV can be established and maintained in a resource-poor setting, and to date the acupuncture clinic continues to run weekly at the Mae On Hospital and has a waiting list for new patients: indeed the hospital would like to expand the days of operation. Additional nurses are being added to the training programme and are also being trained in advanced TCM and acupuncture therapeutics. Both of the initial nurses trained were interviewed separately at the end of the first year of the project and both believed acupuncture was beneficial for the patients’ physical and emotional wellbeing. They were also very satisfied with the training programme and expressed a desire to become licensed to practise acupuncture in Thailand.

In this study, acupuncture treatments were individualised to accommodate each patient’s presenting signs and symptoms rather than a standardised protocol. The rationale of this intervention was to use acupuncture as performed in clinical practice. The majority of acupuncture studies with people living with HIV use a single set of acupuncture points given to all participants without any individualised Chinese diagnosis. These studies define disease in terms of Chinese medicine patterns associated with HIV and AIDS.

However, they do not fully embrace the philosophical principles of TCM where treatment is administered to a patient according to the individual’s constitution or pattern of symptoms rather than a specific disease.

The outcomes of this project suggest acupuncture may have important potential benefits for this resource-poor area and certainly warrant further research. The acupuncture was well tolerated and safe, with no adverse complications reported. Acupuncture has few serious side effects if used correctly, and has no biochemical interactions with allopathic medications, including ART. Treatments can be planned around the availability of hospital staff, and the patient’s work/life schedule. Following the study, calculations showed that acupuncture was very cost-effective. The average cost of a weekly acupuncture treatment (acupuncture needles plus other supplies) for one participant was approximately $1.45 US, translating into around $5.80 US per month per patient. In addition, there were several secondary gains from acupuncture reported. Many of the participants commented that they experienced improved appetite, better sleep, less stress and more energy, even though they were not treated directly for these conditions. Though these results may be due to a placebo effect, they remain noteworthy and perhaps could be explored in further studies.

Limitations

The evaluation had methodological limitations, including small sample size and no control group or randomisation. The results may also have been influenced by placebo effects, intervention from other forms of medical treatment (ART), and/or the self-limiting nature of some symptoms. Furthermore, the length of the pilot study (12 months total, 6 months of acupuncture) may not have been appropriate as some participants began to drop out of the programme after 4 months of acupuncture treatment because they reported feeling better and could no longer miss work. It is recommended that any future follow-up studies consider a shorter intervention period, perhaps 3 or 4 months, in order to address these issues. There was also an issue with missing data and only the 6 month postacupuncture data was complete enough for analysis. For future studies, a more rigorous approach to collecting data is required.

The sensitivity of questionnaires in this study to ascertain changes in health status may have been limited. The instruments used were not previously validated in the Thai HIV-infected population, and they may not have been tailored sufficiently for the culture, educational level and for the modality of treatment (acupuncture). This may explain why the qualitative assessment suggested several benefits of acupuncture, while the impact on quantitative outcome measures was modest. In addition, responses on the MSAS and QoL scales may have been affected by factors other than the acupuncture treatments including nutritional status, social factors, economic livelihood and psychological wellbeing. Moreover, this was a pilot study and was not powered to detect differences between preacupuncture and postacupuncture measures. This study emphasises the importance of ensuring that assessments are culturally appropriate, tailored for the treatment modality and easily understood by study participants.

This study used semistructured interviews to assess the benefits of acupuncture. The results suggested that qualitative assessments are an important complement to standardised symptom and QoL assessments. We found that participants were highly motivated to share their views and appreciated our desire to understand their perspectives. Because acupuncture is part of a holistic system of medicine that addresses physical, mental and emotional concerns, interviews that provide an opportunity for participants to speak about the many facets of their lives may be able to capture the QoL issues with more detail and accuracy.

CONCLUSIONS

This project demonstrated the feasibility of establishing a hospital-based acupuncture clinic for people living with HIV and AIDS in rural northern Thailand in less than 12 months, using local nursing staff. Acupuncture was acceptable to this population, and many participants requested that other clinics be launched in other districts to accommodate people living with HIV without transportation to Mae On Hospital. The director of Mae On Hospital and the head nurse of the HIV/AIDS programme were extremely satisfied with the acupuncture programme and requested training for more nurses.

Though no significant changes in QoL were apparent in the quantitative data in this pilot study, subjects did report slightly fewer physical symptoms after 6 months of acupuncture, and 63% of the subjects reported significant pain reduction after acupuncture.
In contrast, qualitative data demonstrated that 96% of participants reported improvements in their physical symptoms and 89% reported improvements in their sense of wellness and emotional well-being. Perhaps more notably, 48% reported an increased ability to work more thereby decreasing financial stress.

These results warrant a larger and more methodologically rigorous study to determine the effects of acupuncture in this population. Despite the limitations of the present report, the findings suggest this low-cost intervention can be implemented in resource-poor settings to improve QoL and to alleviate physical symptoms due to HIV infection, AIDS and ART.

Acupuncture in this context is a well-tolerated intervention in the treatment of HIV-related symptoms. HIV positive patients with no prior experience of acupuncture report significant benefits. It is feasible to launch a clinic delivering acupuncture in a resource poor setting. This evaluation provides insights into monitoring such projects, but further research is required to explore in more depth the impact of this intervention on the QoL of people living with HIV and AIDS.

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