Acupuncture as a potential treatment for non-cardiac chest pain – a survey

Hugh MacPherson, Jo C Dumville

Abstract

Objective To establish the level of interest in acupuncture as a treatment option for non-cardiac chest pain and to identify the factors associated with this interest.

Background Non-cardiac chest pain is known to be a prevalent condition in the general population. Treatment options are limited. Given that acupuncture has a potential role in the treatment of chronic pain, this study was designed to establish the levels of interest in acupuncture among people with continuing non-cardiac chest pain.

Methods This small study formed part of a larger retrospective cohort study, and was conducted with all 235 people who were given a diagnosis of non-cardiac chest pain at the Rapid Access Chest Pain Unit in York within a 14 month period. We collected data on whether people continued to experience chest pain, and if so, whether they had considered, or would consider, acupuncture as a treatment. We used ordinal logistic regression to investigate potential covariates, including sex and age, that might be associated with this interest.

Results In total, 161 (69%) participants returned questionnaires, 75 (47%) of whom were experiencing continued chest pain with a median duration of 5.4 months. Of these participants, 42% reported that they would consider acupuncture, 36% reported that they would not, and 22% did not know. In the ordinal regression model, we found no covariates significantly associated with the strength of participants’ interest in acupuncture.

Conclusion People with continuing non-cardiac chest pain after attending a Rapid Access Chest Pain Unit have shown considerable interest in acupuncture as a primary care treatment option.

Keywords Acupuncture, non-cardiac chest pain, retrospective cohort.

Background

Chest pain is a common presenting symptom in primary care. The foremost concern among most patients is that the underlying cause of the pain may be related to their heart. However, once patients have been referred to secondary care for investigations, as many as half of them are diagnosed with non-cardiac chest pain.1

Non-cardiac chest pain tends to be diagnosed on the basis of the clinical history, presence of risk factors (such as smoking) and an exercise test. Those diagnosed with non-cardiac pain tend to be younger females, experiencing chest pain at rest or exacerbated by stress, without elevated cholesterol but with higher levels of bodily awareness.1 The cause of non-cardiac chest pain is not always clear, and its origin may be musculoskeletal, gastrointestinal, respiratory or psychiatric, with musculoskeletal being the most likely.2 After diagnosis, patients with a non-cardiac diagnosis are referred back to primary care, where they often continue to experience chest pain and limitation of activity, which generate concern about the cause of their symptoms and dissatisfaction with medical care.1 The prevalence of continuing chest pain two years after initial referral is higher in those with non-cardiac chest pain than in those with cardiac related pain,1 and continuing chest pain is more common in women.3

People with unresolved chronic pain often seek alternative treatments either because of a perceived
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lack of effectiveness of conventional interventions, or because of concerns about side effects of the analgesics often used as a first line treatment. It is likely that this is the case for non-cardiac chest pain. From a national survey in the UK, we know that large numbers of patients consult acupuncturists for treatment of musculoskeletal pain, a proportion of whom are experiencing chest pain. While a preliminary search of major databases showed that there has been considerable research into acupuncture for chest pain associated with angina and other heart problems, no studies were identified that had assessed the clinical effectiveness of acupuncture for non-cardiac chest pain. However, a systematic review of acupuncture for chronic pain suggests that a course of more than six sessions is associated with a positive effect in reducing pain, and it is on the basis of this limited evidence and the increasingly widespread use of acupuncture for chronic pain that we undertook a retrospective cohort study of patients with continuing non-cardiac chest pain. Within this, we were able to ask participants about their interest in acupuncture and seek to identify factors that might be associated with increased interest. In a subsequent phase of this research, we intend to conduct an exploratory pilot in preparation for a large scale randomised controlled trial to establish whether acupuncture is effective for non-cardiac chest pain.

Methods
This small study was nested within another research project that aimed to investigate factors associated with continuing non-cardiac chest pain in a cohort of patients. We contacted all patients who had attended the Rapid Access Chest Pain Clinic at York District Hospital over a 14 month period (August 2003 to October 2004), and who had been given a diagnosis of non-cardiac chest pain. Patients who attended the Rapid Access Chest Pain Clinic were referred from their GP if they had new chest pain symptoms considered to be of possible cardiac origin. At their appointment, patients underwent ECG and standard treadmill exercise tests with a senior cardiac physiologist followed by a consultation with a cardiologist or General Practitioner with Special Interests. A history of the presenting chest pain was taken and the patient was assessed for cardiac risk factors, such as smoking, high blood pressure and diabetes as well as history of heart disease in the family. If there was no evidence of a cardiac problem, the patient was referred back to their GP. As part of this study, we sent the patients with non-cardiac chest pain a questionnaire for self completion. We asked participants to assess their current chest pain status. Participants who continued to experience chest pain were also asked: ‘If you still have chest pain and it is not related to a serious underlying condition, then have you considered, or would you consider, acupuncture as a treatment for your pain?’

All analysis was carried out using SPSS version 12 (SPSS Inc. Chicago, IL, USA). To assess factors associated with participants’ interest in acupuncture, we used an ordinal logistic regression model with strength of desire for acupuncture as the dependent variable (0='no', 1='don't know' and 2='yes', where 'don't know' was assumed to be a strength of response between 'no' and 'yes'). Also included in this model were covariates of sex, age, smoking status, duration of chest pain prior to the Rapid Access Chest Pain Clinic appointment, initial medical diagnosis made at the Rapid Access Chest Pain Clinic and impact of chest pain on life.

Results
In total, 235 (52%) of those referred to the Rapid Access Chest Pain Clinic were diagnosed as having non-cardiac chest pain. All 235 patients in the cohort were sent a questionnaire and the response rate was 161 (69%). More detailed information on this population has been reported elsewhere. The mean age of responders was 58 years, and 58% of responders were female. Responders had a median duration of chest pain at their time of consultation at the Rapid Access Chest Pain Clinic of six weeks (interquartile range 3–16 weeks).

As detailed elsewhere, 75 (47%) of responders reported that they still had on-going chest pain. Women were twice as likely as men to have the condition (hazard ratio 2.2, 95% CI 1.21 to 3.99; P=0.01). Patients who continued to have chest pain were asked whether they would consider acupuncture as a treatment. In total, 28 (42%) of participants who reported continuing pain said they would consider acupuncture, 24 (36%) that they would not consider acupuncture, and 15 (22%) did not know.
We analysed the data for factors potentially associated with the strength of participants’ decisions to consider acupuncture using an ordinal logistic regression model (see Table 1). No variables were related to the strength of their decisions.

**Discussion**

Our main finding from asking people with ongoing non-cardiac chest pain about their interest in receiving acupuncture is that there is considerable interest in this treatment. There are many other factors that will affect the feasibility of recruiting to a randomised controlled trial, but this finding provides the useful information that recruitment will not be limited by patients’ lack of interest in acupuncture per se. The importance of ensuring that there are suitable participants prior to designing a trial should not be underestimated as undertaking a trial represents a huge investment in both time and money. However, participant recruitment to trials is often very challenging and can limit a trial’s progress. A second useful finding is that there are no obvious patient characteristics that seem to affect their interest in the option of treatment with acupuncture. This will support trial designs that aim to recruit from a heterogeneous patient population.

There was a potential response bias in this study. A higher proportion of the respondents was female than non-respondents, and on average respondents were younger. With a response rate of 69%, however, we believe that we have drawn some useful conclusions about the population as a whole. We know that there is a considerable ongoing burden for patients with non-cardiac chest pain. We also know that a number of conventional diagnoses tend to be provided, the most common being musculoskeletal.

**Conclusion**

Data from people with ongoing chest pain after they had attended a Rapid Access Chest Pain Clinic have shown that there is considerable interest in acupuncture as a treatment option. Rigorous research is merited.

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**Table 1** Factors potentially associated with the strength of participants’ interest in the option of treatment of their non-cardiac chest pain with acupuncture: data from an ordinal logistic regression

<table>
<thead>
<tr>
<th>Variable</th>
<th>B*</th>
<th>P value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>0.01</td>
<td>0.77</td>
<td>-0.05 to 0.67</td>
</tr>
<tr>
<td>Duration of chest pain at consultation (weeks)</td>
<td>0.02</td>
<td>0.34</td>
<td>-0.02 to 0.06</td>
</tr>
<tr>
<td>Impact on life</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a problem</td>
<td>0.67</td>
<td>0.52</td>
<td>-1.37 to 2.71</td>
</tr>
<tr>
<td>A mild problem</td>
<td>0.10</td>
<td>0.94</td>
<td>-1.47 to 1.58</td>
</tr>
<tr>
<td>A moderate problem (reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female (reference category)</td>
<td>0.03</td>
<td>0.97</td>
<td>-1.34 to 1.39</td>
</tr>
<tr>
<td>Male (reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis from Consultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastrointestinal/Oesophageal</td>
<td>-1.92</td>
<td>0.11</td>
<td>-4.22 to 0.41</td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td>-0.61</td>
<td>0.42</td>
<td>-2.09 to 0.87</td>
</tr>
<tr>
<td>Other</td>
<td>2.17</td>
<td>0.08</td>
<td>-0.17 to 4.51</td>
</tr>
<tr>
<td>No clear diagnosis (reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>-0.14</td>
<td>0.86</td>
<td>-1.80 to 1.52</td>
</tr>
<tr>
<td>Ex-smoker &gt;5 years</td>
<td>0.47</td>
<td>0.64</td>
<td>-1.47 to 2.46</td>
</tr>
<tr>
<td>Ex-smoker &lt;5 years</td>
<td>-0.97</td>
<td>0.36</td>
<td>-3.05 to 1.11</td>
</tr>
<tr>
<td>Current smoker (reference category)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*B* = regression co-efficient from ordinal logistic regression with a logit link function: the change in logged odds of interest in acupuncture as a treatment (dependent variable) when there is a one unit change in the relevant predictor, with all other predictors held constant.
is merited to establish the effectiveness of acupuncture for this group of patients.

Acknowledgments

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Summary points

Chest pain of non-cardiac origin is common, and may continue to bother the patient

A survey was conducted among patients with continuing pain

Just under half of these patients were interested in acupuncture as a treatment option

Reference list

8. Thomas KJ. The utilisation of alternative health care systems in relation to orthodox medicine. Final Report to the Nuffield Provincial Hospitals Trust. Sheffield: Medical care Research Unit, University of Sheffield; 1990.
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