Acupuncture for mild to moderate emotional complaints in pregnancy— a prospective, quasi-randomised, controlled study

Joao Bosco Guerreiro da Silva

Abstract

Background. The aim of this study was to describe the effects of acupuncture under real-life conditions, in the treatment of emotional complaints during pregnancy.

Methods. A group of 51 conventionally treated pregnant women (with counselling by their physicians and nurses) was allocated by chance into two groups to be either treated or not by acupuncture. Both groups (28 in the study group and 23 in the control group) presented emotional complaints such as anxiety, depression and irritability. They reported the severity of symptoms using a Numerical Rating Scale (NRS) from 0 to 10; and they rated how much the symptoms disturbed five aspects of their lives: mood, sleep, relationships, social activities, sexual life and joy of living. Traditional acupuncture was used. In order to facilitate protocols we used pre-programmed points. Up to four points were permitted as optional points.

Results. Three women from the acupuncture group and four from the control group dropped out of the study. Over the study period, the NRS scores of intensity of emotional distress decreased by at least half in 15/25 (60%) of patients in the study group and in 5/19 (26%) of those in the control group (P=0.013). The impact of the distress on three out of the five aspects of life was significantly less in the acupuncture group when compared with the control group (P<0.05).

Conclusion. Emotional complaints are very common in pregnancy and medication is always a risk. In this study, acupuncture seems to be an efficacious means of reducing symptoms and improving the quality of life of women with emotional complaints during pregnancy. Large randomised studies are recommended to confirm these results.

Keywords

Acupuncture, pregnancy, emotional complaints, anxiety, depression, quasi-randomised controlled trial.

Introduction

Emotional disturbances are very common during pregnancy. Often the individual’s character and her display of tenderness change in a subtle way. An inversion in the emotive sphere can occur, making the pregnant woman irritable and aggressive towards her husband and towards those with whom she has closest affinity. Signs of anxiety can be seen that are presented in several forms: as anguish, irritability and dysphoria and with instability of moods, rapidly changing from tears to laughter without any apparent reason. Many women experience tiredness, lethargy, emotional lability, irritability and a reduction of libido in the first three months of pregnancy. These symptoms tend to improve at about the midpoint of the gestational period. Anxiety tends to affect more than 15% of cases,1 and depression can affect more than 20%.14 The importance of postnatal depression is well known and widely discussed, but it has been studied less in the prenatal period. Frequently, depression is mild and hence it is not diagnosed,1 although it can, in some situations, cause unpleasant symptoms. Recent research has even studied the association between depression and preterm births, especially in lower socioeconomic groups,1 and effects of stressful events on the newborn. However, in some cases, the symptoms can become severe, persistent and sufficiently disabling for them to be managed...
seen as part of a clinically significant depressive episode.

The pharmacological treatment of depression during pregnancy poses a challenge for psychiatrists, gynaecologists and for the patients themselves. On one hand, the suffering of the depressed mother-to-be and the risks inherent to the depressive state must be considered and, on the other, there are the potential teratogenic effects of antidepressants. Although tricyclic derivatives are considered to be drugs without teratogenic effects, they should be employed with extreme caution, in particular during the first three months of pregnancy.

Acupuncture may be a valuable treatment method for this type of symptom in pregnancy. The proven release of serotonin during treatment with acupuncture, which might be associated with improvements in altered emotional states, is observed after the first few sessions. Emotional stress improves with acupuncture, mainly because of its anxiolytic effect. It was demonstrated, in a double blind controlled study with 24 patients, using the Hamilton and Asberg scales, that acupuncture produced a therapeutic effect similar to amitriptyline for depressive episodes. The same study also showed that acupuncture had a better effect for anxious somatisation and disorders of the cognitive process when compared with amitriptyline. The side effects of acupuncture were less evident than those of the drug. Two further studies observed satisfactory responses using acupuncture for depression.

No published reports were found which specifically analysed treatment by acupuncture of emotional disturbances in pregnant women. However, Oberg et al, whilst studying pain in 46 women in the first weeks of pregnancy, found, as a secondary outcome, an improvement in anxiety. Knight et al, studying 55 women at 6 to 10 weeks of pregnancy, aiming at discovering the effectiveness of true and false acupuncture in the control of morning sickness, also found an improvement in anxious and depressive states.

Therefore the aim of this study was to observe the effects of acupuncture, in practice, on the treatment of emotional complaints in pregnancy. We established an acupuncture service in prenatal care, to investigate the effects of a policy of ‘using acupuncture’ compared with a policy of ‘avoiding acupuncture’ by comparing two conventionally treated groups where one group was also treated with acupuncture during the second and the beginning of the third trimester.

Methods

The Research Ethics Committee of the Federal University of São Paulo, Brazil approved this study. From July 2002 to April 2003, a project offering acupuncture to pregnant women attending the prenatal programme of Santa Casa of São José do Rio Preto was initiated with the aim of treating the most common non-obstetric complaints. This is a state-funded service that receives pregnant women from the local region.

After giving their informed consent, the pregnant women who attended clinics on Tuesdays and Thursdays were given acupuncture along with conventional treatment (study group) and those who attended the Monday and Wednesday programs were only treated in the conventional manner (control group). With the exception of the acupuncture treatment, there was no difference between the groups. The inclusion criteria were: ages from 15 to 39 years, 15 to 30 weeks of pregnancy and mild or moderate emotional complaints such as nervousness, irritability, weepiness, affective lability, poor concentration and mild anxiety and depression. Included patients could not belong to a high-risk pregnancy group, be taking psychotropic medicine or have been treated by acupuncture in the preceding year.

During the study period, 51 patients complained of mild or moderate emotional complaints and were included. Twenty-eight of these were treated using acupuncture and 23 were treated by conventional means alone.

Outcome measures

At enrolment, all women were requested to fill in a questionnaire covering sociodemographic data, history of complaints before the first visit and previous obstetric diagnoses. They answered questions about their symptoms and the emotional impact of the symptoms on daily aspects of life. They were then referred to their obstetrician, and the study group was subsequently also referred to the acupuncturist.

The women estimated the severity of their emotional distress using a Numerical Rating Scale.
(NRS) of 0 to 10, where zero meant no problem at all and 10 the greatest problem imaginable. They first rated their ‘overall emotional distress’, and then rated the impact this had on five areas of their life: mood, sleep, relationships, social activities, sexual life and joy of living. The measure was developed ad hoc specifically for this project.

The first and last ratings were conducted as part of a face to face interview conducted by a medical student, trained specifically for the purpose. In addition, the same student conducted telephone interviews after two, four and six weeks of the study, rating the symptoms in the same way and always referring to the previous 14 days. Contact with the other members of the study was kept to the minimum possible.

In addition, prescriptions for phytotherapeutic agents were collected directly from the patients’ records.

**Conventional treatment**

All patients who presented with slight or moderate emotional disturbances in this clinic were treated with counselling by their physicians and nurses, both in individual and group sessions. When considered necessary, one of two phytotherapeutic agents could be prescribed: *Passiflora edulis* for symptoms of anxiety and *Hypericum perforatum* for symptoms of depression.

**Acupuncture**

The treatment of acupuncture was normally performed once a week but occasionally twice when it was deemed necessary, over an eight week period, making a minimum of eight and a maximum of 12 sessions.

Traditional acupuncture was used, respecting the classical acupuncture points including depth of insertion. Sterilised stainless steel needles of 40mm in length and 0.2mm in diameter were used. Neither electrostimulation nor ear acupuncture was used. On average 12 needles were utilised always attempting to achieve the *de qi* sensation (acupuncture needleling sensation). Needles were left in place for about 25 minutes.

The acupuncturist in the study had completed 600 hours of postgraduate training in acupuncture, which included the theory and practice of traditional Chinese medicine. In order to facilitate the protocol, a decision was made to use standardised points which were: bilateral points – HT7, PC6, LU9, ST36, LR3; and midline points – *Yintang*, GV20, CV17. Up to four additional points were permitted in order to individualise treatment.

This group was also offered counselling, and phytotherapeutic agents were used at the discretion of the patient’s obstetrician (who could not be entirely blinded to the project).

**Statistics**

Before the application of any statistical analysis, the Anderson-Darling test for normality was performed to test the distribution of the data. Demographic and obstetric variables were compared using two-sample*t* tests for normal data, and Kruskal-Wallis test for non-parametric data. Changes over time in the NRS assessments of symptom intensity (overall emotional upset) were analysed by calculating the response rate, ie 50% reduction in score. Response rates were then compared using the two-sample binomial test with normal approximation or the Fisher exact test when appropriate. Differences in values between initial and final sessions were analysed by the two-sample*t* test. The scores on the effect of emotional disturbance on mood, sleep, relationships, sexual life and joy of living were compared using medians and were analysed by Mood’s test for medians. A P value <0.05 indicated a significant difference.

Results are reported as differences in means and standard deviations (SD) or medians and interquartile ranges (IQR).

**Results**

Seven women dropped out, three from the study group and four from the control group. One in each group moved away, the others missed at least two consecutive interviews. Thus, 25 patients in the study group and 19 in the control group completed the treatment and provided data at all time points, and are included in the analysis.

The two groups were similar in respect to age, gestational age, number of previous pregnancies and body mass index. These data can be seen in Table I.

No important adverse effects were reported. Four patients reported bruising related to needling...
The birth weight of infants did not differ significantly between the study (3217g, SD=428g) and control patients (3086g, SD=306g) (P=0.23). The median value for the 1-minute Apgar score was 9.0 (IQR=0.0) in the acupuncture group and 9.0 (IQR=1.0) in the control group (P=0.019), giving a difference favourable to the study group. One infant in the acupuncture group and two in the control group were classified as Apgar score 7, and one child in the study group was classified as 6.

The median value for the 5-minute Apgar was 10 (IQR=0.0) for both groups (P=0.72).

During the study period, the average intensity of the symptoms decreased by at least a half in 15 (60%) patients in the study group and in 5 (26%) of those in the control group (chi square=6.145, df=1, P=0.013). During treatment a diminishing trend of NRS values was evidenced in both groups (P<0.00005), but the effect was greater in the study group (P=0.004), as shown in Figure 1 and Table 2.

### Table 1 Background data for women included in study

<table>
<thead>
<tr>
<th></th>
<th>Study group (n=25)</th>
<th>Control group (n=19)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)*</td>
<td>26.7 (5.6)</td>
<td>25.8 (5.5)</td>
<td>0.58</td>
</tr>
<tr>
<td>BMI for GA*</td>
<td>24.2 (4.0)</td>
<td>25.9 (5.6)</td>
<td>0.25</td>
</tr>
<tr>
<td>Gestational age (weeks)*</td>
<td>19.9 (4.3)</td>
<td>21.0 (4.2)</td>
<td>0.29</td>
</tr>
<tr>
<td>Parity*</td>
<td>1.0 (1.0)</td>
<td>2.0 (2.0)</td>
<td>0.21</td>
</tr>
<tr>
<td>Miscarriages*</td>
<td>0.0 (0.0)</td>
<td>0.0 (0.0)</td>
<td>0.65</td>
</tr>
</tbody>
</table>

Values are means (SD) or medians (IQR): * = means (SD); † = medians (IQR)

### Table 2 Ratings of overall emotional upset in the two groups at different time points

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pre</th>
<th>2 weeks</th>
<th>4 weeks</th>
<th>6 weeks</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
<td>25</td>
<td>7.5 (2.7)</td>
<td>5.0 (2.2)</td>
<td>4.1 (2.6)</td>
<td>3.4 (2.4)</td>
<td>3.6 (2.8)</td>
</tr>
<tr>
<td>Control</td>
<td>19</td>
<td>7.1 (2.7)</td>
<td>5.0 (2.9)</td>
<td>5.6 (2.8)</td>
<td>5.3 (2.6)</td>
<td>5.6 (2.8)</td>
</tr>
</tbody>
</table>

Values are means (SD)

in the acupuncture group. The birth weight of infants did not differ significantly between the study (3217g, SD=428g) and control patients (3086g, SD=306g) (P=0.23). The median value for the 1-minute Apgar score was 9.0 (IQR=0.0) in the acupuncture group and 9.0 (IQR=1.0) in the control group (P=0.019), giving a difference favourable to the study group. One infant in the acupuncture group and two in the control group were classified as Apgar score 7, and one child in the study group was classified as 6. The median value for the 5-minute Apgar was 10 (IQR=0.0) for both groups (P=0.72).

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Figure 1 Mean of emotional complaints according to groups (P value = 0.0001).
At the end of treatment, the differences between the initial and final NRS were significantly higher in the acupuncture group when compared with the control group (NRS 3.9 (SD=3.4) vs 1.5 (SD=4.0) respectively (P=0.020)).

At the end of treatment, the scores for severity of symptoms were lower in the acupuncture group compared with the control group in three of the five parameters measured. Improvements of at least 50% were reported in the study group and the control group, respectively, as follows; mood (48% vs 5%, P=0.001), sleep (48% vs 5%, P=0.005) and relationships (44% vs 16%, P=0.029). There were no significant differences for scores for sexual life and joy of living.

Seven patients in the control group reported that their complaints increased over the study. Three of them, who had symptoms of depression, were treated with Hypericum perforatum and four, with symptoms of anxiety, were treated with phytotherapeutic Passiflora edulis. One patient in the study group was prescribed Passiflora edulis.

Discussion

Emotional complaints are often seen in women in prenatal clinics. Their intensity during pregnancy may be associated to certain variables such as age, gestational age, number of previous pregnancies, parity, previous miscarriages and even body mass index. Hence these factors were analysed in the study and control groups so that they could be eliminated as a cause of differences in the results.

The main finding in our cohort was that acupuncture proved to exert a good influence in minimising the emotional symptoms in pregnancy during treatment. This can be seen by the significant difference between groups: that is, although in both groups the symptoms dropped (which was expected with the progression of the pregnancy), the mean of the symptoms in the study group is lower than that of the control group at the end of treatment.

Although the use of drugs was low, we can see that drugs were prescribed to seven of the control patients versus one in the study group. We could also see a decrease in the negative reported effects of the emotions on aspects of everyday life. Sleep, mood and relationships, which usually worsen as pregnancy advances, particularly in the presence of emotional disturbances, showed significant improvements in the study group when compared to the control group. Sexual life and joy of living, however, did not present significant differences between the two groups.

Limitations

The control group patients did not receive a sham acupuncture intervention so the acupuncture group received more attention, and this fact could be seen as a ‘placebo effect’. We modelled this study on that of Vickers et al, using what he called a pragmatic study, ie a policy of ‘use acupuncture’ versus ‘avoid acupuncture’. We did not consider the option of using a sham treatment in this exploratory study.

Much has been said about the best way of designing the control group in research on acupuncture. The term placebo has not been clearly defined in relation to acupuncture yet. Apparently even non-points, according to tradition, can have important effects. It is possible too, that sham procedures on true or dummy points, with the use of cocktail sticks for example, can produce effects. In three well conducted acupuncture randomised trials in Germany, the authors found no significant difference between ‘real’ and ‘sham’ acupuncture in the treatment of migraine, tension-type headache, or chronic low back pain. Nevertheless, the results with acupuncture were much better than waiting list. This indicates that the effects cannot be understood as placebo effects, and emphasises the problems in using ‘sham acupuncture’ in trials.

Furthermore, at least one study has shown that real acupuncture is superior to placebo in treating emotional problems. Our aim therefore, was to observe the result of treatment by acupuncture on emotional complaints under real life conditions and on the wellbeing of the patients compared with a group that was not treated in this way. We used the third category of design as described by Hammerschlag: acupuncture plus standard care versus standard care only. This may be the most ethical option in these circumstances, in that there is no attempt to deny subjects effective standard treatment. Patients in this trial were not blinded and in order to minimise bias we minimised contact between the therapist and interviewer, as well as talking to the pregnant women about this bias.
Emotional complaints are a very common problem in pregnancy, and even though pregnancy is a special time during the life of women that requires the greatest restriction on the use of drugs as possible, we have not found any publications that specifically studied acupuncture and emotional problems during gestation. Therefore, we compared our work with those that studied acupuncture and emotional complaints in general. Our results are similar to those previously published on acupuncture for emotional complaints such as reports on anxiety,15-17 and depression.15-17,20

Our study is important because more and more research is demonstrating that emotional disturbance can have wider consequences than were previously thought. Hyperactivity and delayed development initially,11 as well as emotional and behavioural problems after some years,2 have been shown in children whose mothers exhibited high levels of anxiety during pregnancy. Selective serotonin re-uptake inhibitors (SSRIs), which have gained wide acceptance in the treatment of mental disorders in pregnancy, seem to present an increased risk of adverse serotonergic central nervous system effects in affected infants.2 It is extremely important to treat pregnant women who present with emotional symptoms and even more important to find therapeutic alternatives that are not pharmacologically based, consequently eliminating the potential for teratogenic effects on the foetus, as the use of medications always poses a risk.

Many acupuncturists fear the use of acupuncture in pregnant women, as they believe that some points might trigger uterine contractions. In this work no important adverse effects were seen. We did not see any significant differences between infants born from one group compared with the other. These data are congruent with results reported by other authors as no maternal or obstetric side effects were seen during or after more than 2500 acupuncture stimulations in 448 pregnant women.15,16-20

**Conclusion**

Emotional complaints are a very common problem in pregnancy. The use of medications always poses a risk. Acupuncture, as demonstrated in this study, seems to be an efficacious means of reducing the symptoms and improving the quality of life of pregnant women. This technique should be further studied in prospective randomised studies with large samples to confirm our findings relating to its efficacy and the absence of adverse effects. The treatment is simple to employ and when used appropriately can reduce the necessity for medications.

**Competing interests:** None declared

**Summary points**

- Emotional complaints are very common in pregnancy, and medication is avoided as far as possible.
- Acupuncture seems to be an efficacious means of reducing symptoms and improving the quality of life of women with emotional complaints during pregnancy.
- Large randomised studies are recommended to confirm these results.

**Reference list**


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