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# Acupuncture for depression and myalgia in patients with hepatitis: an observational study

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## ABSTRACT

**Background** Depressive symptoms and myalgia are commonly seen in patients with chronic hepatitis B and chronic hepatitis C.

**Objective** To investigate the efficacy of acupuncture treatment on depressive symptoms and myalgia in patients with hepatitis.

**Methods** Of 44 patients with hepatitis screened for depression and myalgia, 28 were enrolled and included in the study. The main outcome measure for depressive symptoms was Beck's Depression Inventory (BDI). For pain/myalgia, patients rated their pain on a scale from 0 to 10. Patients with a score greater than the cut-off point in either score were allocated to acupuncture treatment. The Chinese method of acupuncture was used. Treatment continued for 6 weeks.

**Results** At baseline, 17/44 patients (39%) had a BDI score  $\geq 17$  and 24 (55%) had a pain score  $\geq 5$ . A total of 28 patients were allocated to acupuncture treatment, forming three groups: group 1, 13 patients with high BDI and high myalgia scores; group 2, 11 patients with low BDI score but high myalgia score; group 3, 4 patients with high BDI score but low myalgia score. Adherence to treatment was good; all patients completed the sessions and there were no drop-outs. Significant improvements in end-treatment BDI and in myalgia scores compared with baseline levels was found.

**Conclusion** Acupuncture seems to be a promising treatment for patients with hepatitis. Further studies are warranted in large populations to establish the therapeutic role of acupuncture.

## INTRODUCTION

The estimated numbers of patients with chronic hepatitis C (CHC) and B (CHB) viral infections in the world are 2.7 million and 350 million, respectively.<sup>1,2</sup> Depressive symptoms are common in these patient groups. Increased expression of specific proinflammatory cytokines has been shown to cause depressive symptoms in patients with hepatitis C virus. Additionally, treatment of the disease with interferon (IFN) may also cause or exacerbate depression.<sup>3,4</sup> Reports suggest that depression in patients with CHB develops less frequently than in patients with CHC during treatment with IFN. However, a Turkish study found a

high rate of psychiatric disorders and no significant difference between the two groups.<sup>5</sup>

Psychotherapy and antidepressant drugs are known to be useful but high rates of drop-out, lack of effect in some patients, intolerable adverse effects and relapse all reduce their effectiveness and patient compliance.<sup>6-8</sup> In consequence, patients with depression may seek alternative treatments.

Acupuncture has long been used to treat emotional and psychological disorders, including anxiety, insomnia and depression.<sup>6,9,10</sup> It may also be an alternative treatment of depressive symptoms in patients with CHB or CHC. In our patients with hepatitis, we have found that in addition to depression, myalgia is also common. Therefore, the objective of this study was to determine the prevalence of depressive symptoms and myalgia among patients with chronic hepatitis and to investigate the efficacy of acupuncture treatment.

## PATIENTS AND METHODS

### Setting

The study was conducted in an outpatient setting in a 600-bed, tertiary care facility at Ankara Training and Research Hospital.

### Patients

Forty-four consecutive patients who were being followed up in the outpatient department for CHB or CHC infection, between December 2005 and April 2006, were recruited for the study and screened for depressive symptoms and myalgia. Exclusion criteria were pregnancy, presence of other psychiatric disorders, history of antidepressant use during the preceding 3 months, coagulation disorders and drug addiction. Each patient included signed an informed consent form. Ethics approval was obtained from the Ankara Training and Research Hospital Ethics and Projects Committee.

### Design

This was a prospective, uncontrolled observational study. The main outcome measure for depressive symptoms was Beck's Depression Inventory (BDI).<sup>11,12</sup> For muscle pain/myalgia,

patients rated their pain on a scale from 0 to 10; 0 for 'no pain' and 10 for 'the worst pain possible'.<sup>13</sup> The BDI was completed by patients and scores counted by the clinician. Patients with a score greater than or equal to the cut-off point (17 for BDI and 5 for the myalgia scale), were referred for acupuncture treatment.

### Acupuncture

The Chinese method of acupuncture was used. The following points and needling depths were used bilaterally for depression and myalgia: *Yintang* (0.3 cun), LU9 (0.2 cun), CV 17 (0.2–0.3 cun), SP6 (0.5–1 cun), LI4 (1 cun), ST36 (1–1.5 cun), KI3 (0.5 cun) and LR3 (0.5 cun). Silver acupuncture needles (Kangnian KT1, Beigiao Town, China) were used. All needle diameters were 0.25 mm, and needle lengths were 25 mm. The duration of the needling was 20 min at each visit, without any needle stimulation or any other attempts to elicit *de qi*. The treatment comprised two visits a week for 6 weeks.

### Statistical analyses

The BDI questionnaire was completed by all patients and the score calculated by the clinician. BDI and muscle pain scale were calculated at baseline and at the end of treatment in the sixth week. All statistical analyses were performed with SPSS 15.0 (SPSS, Chicago, USA). BDI and myalgia scores were presented as median (minimum–maximum) and values before and after treatment were compared by the Wilcoxon rank test. BDI and myalgia scores of hepatitis B and C groups were compared by the Mann–Whitney U test. In all analyses p values were two tailed and  $p \leq 0.05$  was considered statistically significant.

## RESULTS

Forty-four patients with hepatitis (18 male, 26 female) were screened for depressive symptoms and myalgia to determine their eligibility for acupuncture treatment. Mean age was 35 (range 23–54). Thirty-nine patients (89%) had CHB and four (9%) had CHC while one (2%) had both. Mean hepatitis duration was 4 years (range 1–25 years). Three of the total (6.8%) were receiving IFN treatment.

At baseline, 17 patients (39%) had a BDI score of  $\geq 17$  and 24 (55%) had a myalgia/pain score of  $\geq 5$ . Twenty-one patients (48%) had mild to severe fatigue. Five (11%) had a history of antidepressant drug use previously. Median BDI scores of patients with CHB and CHC were 12 (range 1–33) and 23 (13–26), respectively. Median myalgia scores of patients with CHB and CHC were 4 (0–10) and 7 (5–8), respectively. The patient with both CHC and CHB had a BDI score of 37 and myalgia score of 8.

Of 44 patients with hepatitis, 28 were enrolled and allocated to acupuncture treatment, forming three groups:

Group 1: 13 patients with both high BDI ( $\geq 17$ ) and high myalgia scores ( $\geq 5$ )

Group 2: 11 patients with low BDI score ( $< 17$ ) but high myalgia score ( $\geq 5$ )

Group 3: 4 patients with high BDI score ( $\geq 17$ ) but low myalgia score ( $< 5$ ).

Adherence to treatment was good. All patients completed the sessions and there were no drop-outs. Even those patients of group 2 who had low BDI scores at baseline were asked to complete the BDI score sheets at the end of the treatment course in order to test for any effect of acupuncture on their scores.

In groups 1 and 2, the median BDI and myalgia scores were decreased significantly (table 1). In group 3, although a decrease in the median BDI score was noted, the difference was not significant ( $p=0.068$ ). The median myalgia score of the third group was similar before and after the treatment.

BDI and myalgia scores were also compared for patients with CHB and CHC, regardless of their groups, but the difference was insignificant ( $p>0.05$ ). Baseline BDI scores of patients using IFN treatment were significantly higher than those of patients not using IFN ( $p=0.023$ ) and two of three patients receiving IFN treatment were included in acupuncture treatment. However, BDI and myalgia scores at the beginning and end of treatment differed significantly only in the non-IFN group ( $p<0.001$  for each).

Patients were asked at the start of the study and at the final follow-up about their attitude towards acupuncture. At the start of the study all patients welcomed the opportunity of receiving acupuncture treatment. At the end of treatment, 90% of patients reported a positive impression of the effect of acupuncture, 10% noticed no difference from the start. A drawback of treatment was that 69% reported being slightly afraid of the needles.

## DISCUSSION

This was a prospective, uncontrolled observational study. Forty-four patients with chronic hepatitis were examined for the presence of depressive symptoms and myalgia, and 28 of these were allocated to acupuncture treatment. Overall attendance for treatment was good and the results were promising. To the best of our knowledge, this is the first study of the effectiveness of acupuncture for depressive symptoms in patients with chronic hepatitis.

It is well known that hepatitis C virus can directly affect brain function and may lead to mood disorders, anxiety and major depressive disorders.<sup>4 5 14 15</sup> In our study, 17 patients (39%) had depressive symptoms. Although in this study patients with CHC had higher BDI and myalgia scores than those with CHB, the number of patients with CHC was too few for conclusions to be drawn.

IFN treatment is another cause of depression in patients with hepatitis<sup>3 12</sup> and therefore the presence of a psychiatric disorder limits use of IFN in many patients.<sup>16</sup> In our study we wanted to examine the effect of acupuncture on patients who were receiving IFN treatment. However, only three patients were using IFN and only two of those were allocated to acupuncture. Although we found significantly higher BDI scores in the two patients receiving IFN, the number was too small for a clear conclusion to be reached.

**Table 1** BDI and myalgia scores of the 28 patients with chronic hepatitis; at the beginning and end of the acupuncture treatment

Groups	Value*					
	BDI-1	BDI-2	P1	Myalgia-1	Myalgia-2	P2
Group 1 (n=13)†						
Median	24	13	0.002	8	5	0.005
Range	17–37	7–26		5–10	2–7	
Group 2 (n=11)‡						
Median	12	6	0.018	7	4	0.007
Range	1–16	0–12		5–10	2–5	
Group 3 (n=4)§						
Median	18	12	0.068	0	0	NS
Range	17–26	8–14		0–4	0–2	
Overall (n=28)¶						
Median	17	10	<0.001	7	4	<0.001
Range	1–37	0–26		0–10	0–7	

\*BDI-1, baseline BDI score; BDI-2, BDI score at the end of the treatment; myalgia-1: baseline myalgia score; myalgia-2: myalgia score at the end of the treatment; †patients with BDI $\geq$ 17 and myalgia score  $\geq$ 5; ‡BDI<17 and myalgia score  $\geq$ 5; §BDI $\geq$ 17 and myalgia score <5; ¶overall: all patients treated with acupuncture. BDI, Beck's Depression Inventory; NS, non-significant.

A meta-analysis of eight studies by Wang *et al*<sup>17</sup> investigated the efficacy of acupuncture for depression. BDI and Hamilton Rating Scale for Depression were used in those studies for the scoring of depression. Similar studies of acupuncture efficacy on depression also used BDI scale.<sup>18</sup> Other diagnostic and outcome measure tools used in different studies were RAND 36 Item Health Survey 1.0, PHQ-9, Diagnostic and Statistical Manual of Mental Disorders (DSM III or IV), International Classification of Disease and Chinese Classification of Mental Disorders.<sup>17–22</sup> In our study, we used BDI for the assessment of depression and for evaluation of the efficacy of treatment. BDI forms are completed by patients themselves, making them easier to use; however, the scores were calculated by the doctors making bias less likely. Therefore, we recommend using BDI for such studies.

A number of studies suggest that acupuncture is better than medication.<sup>19–21</sup> In their meta-analysis, Wang *et al*<sup>17</sup> compared the efficacy of acupuncture with placebo in 477 depressive patients overall, and found a significant reduction in depression level at the end of treatment. Although we found acupuncture useful for our depressive patients, we did not compare its efficacy with medication or placebo, which is a limitation of our study.

Depressive patients may also present with painful symptoms, with a prevalence as high as 65%.<sup>22</sup> Therefore, we also evaluated myalgia/pain together with depression in our study. Twenty-four patients (55%) had high pain scores, which was higher than the depression rate (39%) in our study group. Although group 1 (high BDI, high myalgia score) showed a significant decrease in the BDI score ( $p=0.002$ ), group 3 (high BDI, low myalgia score) only reached near significance ( $p=0.068$ ). Therefore, we suggest that those patients with concurrent depression and pain may receive more benefit from acupuncture. However, the patient numbers in the groups were relatively small, which prevents a clear conclusion.

There are some limitations to our study. First, no control group receiving any medication or a different type of acupuncture methodology was studied, so the results are limited to our study group. Second, the number of patients receiving IFN treatment was small, so we could not measure or compare the efficacy of acupuncture on IFN-induced depression. Further studies in large patient groups are warranted in order to confirm the therapeutic role of acupuncture in chronic hepatitis-related depression.

### Summary points

- ▶ Patients with chronic hepatitis commonly have myalgia and depression.
- ▶ We observed the effects of 12 sessions of acupuncture in 28 patients.
- ▶ There were significant improvements in both myalgia and depression.

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**Competing interests** None.

**Patient consent** Obtained.

**Ethics approval** This study was conducted with the approval of our hospital's Ankara Training and Research Hospital Ethics Committee.

**Provenance and peer review** Not commissioned; externally peer reviewed.

### REFERENCES

1. Lok AS, McMahon BJ. Chronic hepatitis B. *Hepatology* 2007;45:507–39.
2. Strader DB, Wright T, Thomas DL, *et al*. American Association for the Study of Liver Diseases. Diagnosis, management, and treatment of hepatitis C. *Hepatology* 2004;39:1147–71.
3. Ferenci P, Stauffer K. Depression in chronic hepatitis: the virus, the drug, or the ethnic background? *Liver Int* 2008;28:429–31.
4. Loftis JM, Huckans M, Ruimy S, *et al*. Depressive symptoms in patients with chronic hepatitis C are correlated with elevated plasma levels of interleukin-1beta and tumor necrosis factor-alpha. *Neurosci Lett* 2008;430:264–8.
5. Ozkan M, Corapcioglu A, Balcioglu I, *et al*. Psychiatric morbidity and its effect on the quality of life of patients with chronic hepatitis B and hepatitis C. *Int J Psychiatry Med* 2006;36:283–97.

6. Allen JJ, Schnyer RN, Chambers AS, *et al.* Acupuncture for depression: a randomized controlled trial. *J Clin Psychiatry* 2006;67:1665–73.
7. Burrows GD. Long-term clinical management of depressive disorders. *J Clin Psychiatry* 1992;53:P32–P5 (Abstract).
8. Montgomery SA, Kasper S. Side effects, dropouts from treatment and cost consequences. *Int Clin Psychopharmacol* 1998;13(Suppl 2):P1–P5 (Abstract).
9. van der Watt G, Laugharne J, Janca A. Complementary and alternative medicine in the treatment of anxiety and depression. *Curr Opin Psychiatry* 2008;21:37–42.
10. Kalavapalli R, Singareddy R. Role of acupuncture in the treatment of insomnia: a comprehensive review. *Complement Ther Clin Pract* 2007;13:184–93.
11. Beck AT, Ward CH, Mendelson M, *et al.* An inventory for measuring depression. *Arch Gen Psychiatry* 1961;4:561–71.
12. Lotrich FE, Rabinovitz M, Gironde P, *et al.* Depression following pegylated interferon-alpha: characteristics and vulnerability. *J Psychosom Res* 2007;63:131–5.
13. Hartrick CT, Kovan JP, Shapiro S. The numeric rating scale for clinical pain measurement: a ratio measure? *Pain Pract* 2003;3:310–6.
14. Carta MG, Hardoy MC, Garofalo A, *et al.* Association of chronic hepatitis C with major depressive disorders: irrespective of interferon-alpha therapy. *Clin Pract Epidemiol Ment Health* 2007;23:22.
15. Zignego AL, Cozzi A, Carpenedo R, *et al.* HCV patients, psychopathology and tryptophan metabolism: analysis of the effects of pegylated interferon plus ribavirin treatment. *Dig Liver Dis* 2007;39(Suppl 1):107–11.
16. Rowan PJ, Dunn NJ, El-Serag HB, *et al.* Views of hepatitis C virus patients delayed from treatment for psychiatric reasons. *J Viral Hepat* 2007;14:883–9.
17. Wang H, Qi H, Wang BS, *et al.* Is acupuncture beneficial in depression: a meta-analysis of 8 randomized controlled trials? *J Affect Disord* 2008;111:125–34.
18. Whiting M, Leavey G, Scammell A, *et al.* Using acupuncture to treat depression: a feasibility study. *Complement Ther Med* 2008;16:87–91.
19. Zhang ZJ, Chen HY, Yip KC, *et al.* The effectiveness and safety of acupuncture therapy in depressive disorders: systematic review and meta-analysis. *J Affect Disord* doi:10.1016/j.jad.2009.07.005.
20. Zhang JB, Ren L, Sun Y. Meta-analysis on acupuncture for treatment of depression in patients of poststroke. *Zhongguo Zhen Jiu* 2009;29:599–602.
21. Wang XJ, Wang LL, Qiao HF, *et al.* Observation on effective characteristics of acupuncture combined with medicine on depression of different syndrome types. *Zhongguo Zhen Jiu* 2009;29:699–702.
22. Schroer S, Macpherson H. Acupuncture, or non-directive counselling versus usual care for the treatment of depression: a pilot study. *Trials* 2009;10:3.