The Acupuncture Treatment of Schizophrenia: A Review with Case Studies

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Abstract

Schizophrenia is a complex, multifactorial mental disorder with unknown aetiology and a heterogeneous presentation. Because of its complexity, in order to be effective the treatment approach should be individualised, integrative and multidisciplinary and include the necessary biopsychosocial components. The use of complementary and alternative medicine (CAM) in the treatment of mental disorders is increasing, especially acupuncture, which constitutes a safe and effective treatment modality. This article reviews schizophrenia from the perspective of both Western and traditional Chinese medicine and includes two case studies of patients with chronic schizophrenia who were successfully treated as part of a larger clinical trial that investigated the effectiveness of the acupuncture treatment of schizophrenia.

Part one: Schizophrenia and Western medicine

Introduction

Schizophrenia is a severe and persistent mental disorder characterised by disturbance of a variety of mental functions such as cognition, emotion, perception and behaviour, and by long-term deterioration in functional capacity.[1, 2] The lifetime prevalence of schizophrenia in the general population is about one percent, with an equal distribution between men and women, and a typical onset in early adulthood (earlier in men).[2] Many patients suffering from schizophrenia are first admitted to a psychiatric hospital before the age of 25 and then experience recurrent hospitalisation throughout their lives.[2, 3]

In the past, the attitude toward mentally ill patients involved stigmatisation and discrimination, and for patients this usually meant alienation, isolation and concealment of their illness.[4] Today, with the growth of social awareness and developments in the field of mental health, great effort is being expended on developing an 'anti-stigmatic' approach to mental illness, where awareness and acceptance of emotional disturbance informs the multidisciplinary treatment, rehabilitation and integration of schizophrenic patients into society.[5]

Schizophrenia appears in the top ten of the Global Burden of Disease study[1] because of the enormous emotional, social and economic costs to the schizophrenic patient, their family and society. The reason for this becomes clear if the combined characteristics of the disorder are considered: its tendency to present early in life, relatively high lifetime prevalence, disabling symptoms, lifelong deteriorating course, associated psychiatric and medical morbidity, increased risk of suicide and the accumulated psychosocial damage associated with the disease.

Clinical features and diagnosis

The heterogeneous clinical presentation of schizophrenia can be described by four major symptom clusters: positive symptoms, negative symptoms, cognitive impairments and affective disturbances.[2, 3, 6] Positive symptoms, which are synonymous with psychosis, reflect an excess or distortion of normal mental functions. These symptoms include hallucinations, delusions, disordered speech and disturbed or bizarre behavior, and tend to appear more frequently during exacerbations of the illness. Conversely, negative symptoms reflect a diminution or loss of normal mental functions. These symptoms include diminished affective responsiveness, diminished social drive, diminished motivation, anhedonia (an inability to experience pleasure) and poverty of speech and movement.[3, 7, 8] Large cumulative studies show that schizophrenia patients have deficits in a multitude of neurocognitive functions, including attention and vigilance, speed of information-processing, working memory, verbal learning and memory, visual learning and memory, reasoning, problem solving and social cognition.[9]

Problems with mood and affect are common in schizophrenia. Depressive symptoms are common throughout the course of the illness, especially immediately following a psychotic episode. Epidemiological studies indicate that up to 80 per cent of schizophrenic patients will have a major depressive episode at some time in their lives.[10] Depressive episodes in schizophrenic patients are associated with an increased risk of suicide. Suicide attempts are

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made by 20 to 50 per cent of schizophrenic patients, with rates of completed suicide estimated to be 10 to 13 per cent. The risk of suicide is strongly associated with depression, previous suicide attempts, drug abuse, agitation and motor restlessness, fear of mental disintegration, poor adherence to treatment and recent loss.[11,12] Sleep disturbances, especially insomnia, are also associated with schizophrenia. Polysomnographic studies of schizophrenic patients show disturbances in both REM and NREM (specifically in deep sleep) and decreases in the amount of sleep.[13, 14]

The absence of a single pathognomonic symptom or sign or confirmatory laboratory or neuropsychological test makes schizophrenia especially challenging to diagnose. Diagnosis is therefore clinical and requires the presence of two or more of the following symptoms for a significant portion of one month (or a shorter period if successfully treated): delusions, hallucinations, disorganised speech, grossly disorganised or catatonic behavior or negative symptoms. Some of these symptoms must be present for at least six months and must also be associated with marked impairment in social and occupational functioning.[2] This six-month period must include at least one month of active-phase symptoms, and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or an attenuated form of active-phase symptoms (e.g. odd beliefs, unusual perceptual experiences).

Subtypes of Schizophrenia

The *Diagnostic and Statistical Manual of Mental Disorders 4th Edition*[2] (DSM-IV-TR) classifies the subtypes of schizophrenia - based predominantly on clinical presentation - as paranoid, disorganised, catatonic, residual and undifferentiated.[2] Paranoid-type schizophrenia is characterised by preoccupation with frequent auditory hallucinations or delusions, mainly about persecution or grandeur. Patients with paranoid schizophrenia are typically tense, suspicious, guarded, reserved and sometimes hostile or aggressive.[15] Disorganised-type schizophrenia, also known as hebephrenic schizophrenia, is characterised by a marked regression to primitive, disinhibited and disorganised behaviour. Thought disruption is pronounced, and contact with reality is poor. Personal appearance is usually dishevelled, and social behavior and emotional responses tend to be inappropriate (e.g. bursting into laughter without reason).[15] Catatonic schizophrenia, nowadays considered rare, is characterised by a lack of interaction with the environment and the presence of specific motor symptoms: bizarre posturing, waxy flexibility, negative reactions to commands or attempts to move the person, meaningless stereotypical gestures or activities, mutism, echopraxia (involuntary repetition or imitation of the observed movements of another), echolalia (involuntary repetition of words or phrases just spoken by others) or extreme excitement (which may be very dangerous to the person and their surroundings).[16, 17] Negative symptoms predominate in the clinical picture of residual schizophrenia, for example emotional blunting, social withdrawal, eccentric behavior and illogical thinking, which occur without evidence of prominent positive (psychotic) symptoms.[15, 18] Patients with schizophrenia who do not fit into one of these categories, or who have symptoms that overlap more than one subtype, are often classified according to DSM-IV-TR as undifferentiated.[15]

Prognosis

Schizophrenia usually begins in late adolescence or early adulthood and persists for the remainder of the patient's life. Its course is typically characterised by exacerbation and remission of psychotic symptoms, with further deterioration in the patient's baseline functioning following each relapse. Some patients suffer from chronic treatment-resistant positive and negative symptoms with a severe deteriorating course. Ten per cent of patients, on the other hand, recover from an initial episode and suffer no further impairment. In general, the course of the illness for an individual patient is difficult to predict; the pattern of illness during the first five years after diagnosis, however, generally indicates the likely prognosis.

The prognosis of schizophrenia patients is heterogenic. More than 50 per cent of patients are described as having a poor outcome, with repeated hospitalisations, exacerbations of symptoms, episodes of major mood disorders, suicide attempts and poverty. Twenty to 30 per cent of patients are able to manage a relatively normal independent life, but only about 10 to 20 percent of patients are considered as having a good outcome. Male gender, gradual onset, early onset, a family history of schizophrenia and lack of an adequate support system are all associated with a poor prognosis.[15, 19, 20]

Aetiology

The cause of schizophrenia is unknown but seems to be polygenic and multifactorial, involving a combination

of biological (including genetic), psychological and social factors with complex reciprocal relationships.[21] Behavioral genetic studies (studies of families, twins and adoption) suggest that the genetic component is the most significant risk factor for schizophrenia.[15, 22] The 50 per cent concordance rate for schizophrenia between monozygotic twins (who share 100 per cent of their genes) highlights both the significance and limitations of genetics in the aetiology of schizophrenia.[15, 23] Among dizygotic twins or other first degree siblings (who share, on average, 50 per cent of their genes), the chance of developing schizophrenia is between 10 to 15 per cent.[15]

The brain areas primarily involved in schizophrenia are the prefrontal cortex, limbic system, thalamus, basal ganglia and cerebellum, together with the neural circuits between them.[24] The leading biochemical hypothesis regarding schizophrenia is dysregulation of dopamine in the brain. Hyperactivity of dopaminergic projections from the midbrain to the anterior cortex explains, partially at least, the presence of positive (psychotic) symptoms, while dopamine hypoactivity in the prefrontal cortex is correlated with negative and cognitive symptoms.[25, 26] Current hypotheses posit excess of serotonin as a cause of both positive and negative symptoms; this theory is supported by the effectiveness of 'atypical' antipsychotic drugs (dopamine and serotonin antagonists) in the treatment of both positive and negative symptoms of schizophrenia.[27] Glutamate, GABA and acetylcholine are among the other neurotransmitters apparently involved in schizophrenia.[28, 29]

Stressful events during pregnancy and the perinatal period, substance abuse (e.g. cannabis and amphetamine), being brought up in adverse circumstances, immigration, population density, low socio-economic status and a variety of other social stressors may affect the development of schizophrenia in people with a predisposition for the disease.[15, 30, 31]

Treatment and rehabilitation

Because schizophrenia is a complex, multifactorial disorder with unknown aetiology and a heterogeneous presentation, for treatment to be effective it needs to be individualised, integrative, multidisciplinary and incorporate the necessary biopsychosocial components. There is currently no cure for schizophrenia and no specific treatment that can eradicate the various associated symptoms and impairments. A comprehensive and enlightened approach to treatment that is tailored specifically to the needs of the individual and incorporates pharmacological, psychotherapeutic, rehabilitative and community support interventions can decrease morbidity and mortality of the illness, improve patient outcomes and enhance the quality of a patient's life. Each component of such a comprehensive treatment plan targets specific aspects of schizophrenia: biological interventions address the positive, negative, cognitive and mood symptoms, while non-biological interventions address the psychological, social and rehabilitation issues. Both facets of treatment are of vital importance.

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The mainstay of the contemporary biomedical treatment of schizophrenia is antipsychotic medication, which aims to diminish psychotic symptom expression and reduce relapse rates. These medications are divided into two classes: 'typical' or first-generation antipsychotics (such as chlorpromazine, perphenazine and haloperidol) and 'atypical' or second-generation antipsychotics (such as risperidone, olanzapine and clozapine).[32] 'Typical' antipsychotic medicines tend to be successful at improving the positive psychotic symptoms of schizophrenia, but have been found to be much less effective in reducing negative psychotic symptoms. The main problem is that these medicines have serious side-effects involving primarily motor, extrapyramidal symptoms such as dystonia or tardive dyskinesia. 'Atypical' medicines are more effective at treating the negative symptoms of the illness and are usually accompanied by fewer extrapyramidal motor side-effects, although they seem to have more metabolic side-effects such as disturbance in the levels of fat in the blood, weight gain and diabetes.[33]

Psychosocial interventions such as social skills training and various types of psychotherapy (individual, couple, family and group) are aimed at encouraging adherence to a medication plan and improving social abilities, self-sufficiency, self-confidence, practical skills, interpersonal communication, coping mechanisms and the general level of functioning of the patient. They can thereby augment clinical improvements and quality of life amongst schizophrenia patients.[15, 32, 34, 35, 36, 37]

Psychiatric rehabilitation has developed significantly over recent decades, with emphasis placed on providing assistance for the psychological disability in the fields of work, social life and living accommodation. Some of the fundamental requirements for effective rehabilitation are: a high level of patient motivation, a skillful multidisciplinary team with a variety of tools and treatment techniques, an individualised rehabilitation program, and

the provision of sufficient time to allow for gradual improvement. Treatment goals include providing the possibility of a full recovery and helping the individual realise their full potential (personal, interpersonal, social and occupational). Thus a rehabilitation program assists the psychologically disabled in improving their functioning and sense of satisfaction within the environment of their choice.[37]

Part two: schizophrenia and Chinese medicine[38, 39]

Chinese medicine has traditionally placed schizophrenic patients into the categories of *dian kuang* (withdrawal and mania), *kuang zheng* (manic condition) or *chi dai* (feeblemindedness).

The pathogenesis of schizophrenia from the perspective of Chinese medicine usually begins with stagnation of Liver qi caused by emotional upset. Stagnation of qi disrupts the Spleen's function of transportation and transformation, which causes the production of phlegm that blocks the interior. Over time stagnant qi and phlegm produce heat, which transforms into phlegm-fire and ascends to harass the Heart and mind. Long-standing stagnation of qi and phlegm can cause blood stagnation, which further obstructs the orifices of the Heart. A long-standing condition will weaken the Heart and the Spleen, thus preventing them from nourishing the shen. Long-standing conditions may also lead either to Kidney yin deficiency with empty fire harassing the mind, or to Kidney and Spleen yang deficiency with malnourishment of the mind by clear yang.

Differential diagnosis and treatment according to pattern

Liver qi stagnation and phlegm accumulation

Main Symptoms: Emotional depression, insomnia, a dull-flat affect, incoherent-illogical speech, visual or auditory hallucinations, overly suspicious or paranoid, chest and rib-side fullness, sighing, slow movements, fatigue, a tendency to profuse phlegm. **When stagnation of qi is predominant:** the tongue is dark, purple or pale with a slimy or thin white coating; the pulse is wiry and slippery. **When accumulation of phlegm is predominant**: the tongue is swollen with a thick and sticky coating; the pulse is slippery and deep. [NB: Flaws & Lake[39] divide this syndrome into three different patterns of 'Liver Qi Depression & Binding', 'Phlegm Qi Depression & Binding' and 'Phlegm Dampness Obstructing Internally'; from a clinical perspective, however, these patterns tend to be inseparable, with signs and symptoms simply changing according to the dominance of either qi stagnation or phlegm accumulation.]

Treatment principle*:* Soothe the Liver, resolve phlegm, open the Heart orifices, strengthen the Spleen and calm the spirit.

Main acupuncture points*:* Taichong LIV-3, Hegu L.I.-4, Neiguan P-6, Daling P-7, Shenmen HE-7, Renzhong DU-26, Xinshu BL-15, Shanzhong REN-17, Zhongwan REN-12, Pishu BL-20, Weishu BL-21, Fenglong ST-40, Zusanli ST-36, Yifeng SJ-17, Tinggong SI-19, Dazhong KID-4. Use reinforcing method on Zusanli ST-36 and Dazhong KID-4, and even-reducing method for all other points for 30 minutes.

Explanation*:* Taichong LIV-3 pacifies the Liver and eliminates stagnation of Liver qi; in combination with Hegu L.I.-4 it eliminates qi stagnation throughout the whole body and calms the spirit. Neiguan P-6 and Daling P-7 move Liver qi, open the Heart orifices and calm the spirit. Shenmen HE-7 opens the Heart orifices and calms the spirit. Renzhong DU-26 opens the Heart orifices and strongly resuscitates and calms the spirit. Xinshu BL-15 and Shanzhong REN-17 both tonify the Heart and calm the spirit. Zhongwan REN-12, Pishu BL-20, Weishu BL-21, Fenglong ST-40 and Zusanli ST-36 all tonify the Stomach and Spleen and resolve phlegm. Yifeng SJ-17 eliminates phlegm and excess from the head and together with Tinggong SI-19 calms the spirit. Dazhong KID-4 calms the spirit and strengthens the will.

Phlegm-fire harassing above

Main symptoms*:* Emotional tension and restlessness, insomnia, breaking things and hurting other people, red face and eyes, scanty dark urine, constipation, a red tongue with a greasy yellow coating and a wiry, slippery and rapid pulse.

Treatment principles*:* Purge fire and drain the Liver, resolve phlegm and calm the spirit.

Main acupuncture points*:* Taichong LIV-3, Hegu L.I.-4, Neiguan P-6, Laogong P-8, Renzhong DU-26, Dazhui DU-14, Juque REN-14, Xingjian LIV-2, Yongquan KID-1, Shaoshang LU-11, Fenglong ST-40 and Fengfu DU-16. Use reducing method on all points for 30 minutes.

Explanation: Laogong P-8 clears heat from the Liver and Heart, calms the spirit and opens the Heart orifices. Dazhui DU-14 clears heat. Juque REN-14 tonifies the Heart, transforms phlegm and calms the spirit. Xingjian LIV-2 drains fire from the Liver. Yongquan KID-1 directs excess fire downwards and calms the spirit. Shaoshang LU-11 clears fire from the upper jiao. Fengfu DU-16 eliminates wind and heat from the head and calms the spirit.

Deficiency of the Heart and Spleen

Main symptoms*:* Excessive thinking and difficulty thinking, anxiety, insomnia, palpitations, confusion, fatigue, poor appetite, dull pale complexion, a pale tongue and a weak, fine pulse.

Treatment principle*:* Strengthen the Spleen, nourish the Heart and calm the spirit.

Main acupuncture points*:* Xinshu BL-15, Weishu BL-21, Neiguan P-6, Shenmen HE-7, Zusanli ST-36 and Dazhong KID-4. Use reinforcing method on all points for 30 minutes.

Yang deficiency of the Spleen and Kidney
Main symptoms*:* Advanced age, no desire to speak, bodily weakness and fatigue, poor appetite, fear of cold, cold extremities, dull pale complexion, a pale tongue with a thin white coating and a weak, deep and fine pulse.
Treatment principle*:* Strengthen and warm the Spleen and Kidney, transform phlegm and open the Heart's orifices.
Main acupuncture points*:* Shenshu BL-23, Weishu BL-21, Weishu BL-21, Shenmen HE-7, Zusanli ST-36, Guanyuan REN-4 and Baihui DU-20. Use reinforcing method and moxa for 30 minutes.
Explanation*:* Shenshu BL-23 and Guanyuan REN-4 tonify the Kidneys. Baihui DU-20 raises yang and calms the spirit.

Yin deficiency of the Heart and Kidney due to excessive fire
Main symptoms*:* Long-term mania, fatigue, insomnia, restlessness, irritability, confusion, emaciation, flushed face, low-grade fever in the afternoon, heat in the five centres, scanty dark urine, constipation, a red tongue with little or no coating and a rapid, fine pulse.
Treatment principle*:* Nourish the Heart and Kidney yin, clear fire from the Heart and calm the spirit.
Main acupuncture points*:* Xinshu BL-15, Shenshu BL-23, Houxi SI-3, Shenmen HE-7, Zusanli ST-36, Yongquan KID-1 and Sanyinjiao SP-6 with reinforcing method for 30 minutes. Laogong P-8, Daling P-7, Danshu BL-19 and Taichong LIV-3 with reducing method for 30 minutes.
Explanation*:* Xinshu BL-15 tonifies and clears fire from the Heart and calms the spirit. Houxi SI-3 clears heat from the Heart and calms the spirit. Sanyinjiao SP-6 nourishes Heart and Kidney yin and drains empty fire. Danshu BL-19 harmonises the Heart and Kidney (fire and water).

Blood stasis obstructing the mind
Main symptoms*:* Emotional lability (sometimes restless-sometimes still), speaking to oneself, paranoia, auditory and visual hallucinations, insomnia, a dark facial complexion, piercing headaches, a dark red tongue with dark or purple spots and a wiry or choppy pulse.
Treatment principle*:* Invigorate blood circulation, tonify qi and calm the spirit.
Main acupuncture points*:* Xinshu BL-15, Shenmen HE-7, Neiguan P-6, Xuehai SP-10, Hegu L.I.-4, Danshu BL-19 and Ganshu BL-18. Use reducing method on all points for 30 minutes.
Explanation: Xuehai SP-10 invigorates blood circulation and dispels stasis. Ganshu BL-18 and Danshu BL-19 regulate qi in order to regulate blood circulation.

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Treatment considerations

In our clinical work we have found that the majority of patients present with qi stagnation and phlegm as predominant patterns, accompanied by secondary patterns of either full or empty fire, or deficiency of the Heart and Spleen. Treatment principles should therefore initially focus on moving qi and resolving phlegm, and then deal with the secondary patterns according to severity of symptoms. Chinese herbal medicine can also be an effective treatment for these patterns, and its efficacy in treating schizophrenia will be studied in the future.

The patients treated in this study lived in accommodation amongst their community, and attended the acupuncture clinic as outpatients. Some were slightly apprehensive of acupuncture, although most tolerated treatment well. All patients completed a course of 16 treatments, with many wishing to continue treatment after the course was completed. Normal manual acupuncture was used, with moderate stimulation applied to the needles in order to avoid causing discomfort.

Research

Few well-established studies have examined the effect of acupuncture on schizophrenia, particularly traditional Chinese acupuncture; most available studies are case reports from China. Rathbone and Xia (2007) concluded in their Cochrane review that there is insufficient evidence to recommend the use of acupuncture for people with schizophrenia.[40] Their conclusion, however, was based on data derived from just five methodologically flawed clinical trials with insufficient numbers of participants and inadequate blinding. Only one of the studies included mentioned acupuncture applied according to TCM pattern differentiation theory. Thus more comprehensive and better-designed studies are needed to determine the effects of acupuncture on schizophrenia.

In the study we report on here, patients with a diagnosis of schizophrenia were treated with acupuncture. The following case studies are taken

from a larger database collected during the study. Analysis of these results is currently being conducted by the research team, and will be published in a psychiatric journal. All the patients in the study were receiving anti-psychotic medicines and were deemed to be clinically stable. In light of the initial results of the study, the research team has decided to conduct a larger study in the psychiatric ward of the hospital.

Part three: case studies

Case study one

A 32 year old male had been diagnosed with schizophrenia eight years previously. He was depressed, with a dull, flat affect, and showed no interest - even in his seven year old daughter. He suffered from insomnia, difficulty waking up in the morning and fatigue. His tongue was slightly purple and swollen, with a thick and greasy coating. His pulse was generally weak, wiry and slippery.

Diagnosis: Stagnation of Liver qi and phlegm with deficiency of the Heart and Spleen.

Treatment principles: Soothe the Liver, resolve phlegm and open the Heart's orifices, strengthen the Spleen, nourish the Heart and calm the spirit.

Main acupuncture points: Taichong LIV-3, Hegu L.I.-4, Neiguan P-6, Zhongwan REN-12, Pishu BL-20, Shenmen HE-7, Zusanli ST-36, Ganshu BL-18 and Yintang (M-HN-3).

Other acupuncture points: Taibai SP-3, Sanyinjiao SP-6, Fenglong ST-40, Quchi LI-11, Ququan LIV-8 and Shenting GV-24.

Treatment course: The patient received two treatments per week for a total of 16 sessions.

Results: After his third treatment the patient started to show gradual improvements in his sleep and fatigue. After his eighth treatment he began to be more responsive to his surroundings, and talked about his daughter with a sense of warmth. After his eleventh treatment the patient reported sleeping well at night and had no problem getting up in the morning. By the end of treatment he was showing a variety of emotions, his memory was improved and he reported feeling 'more sharp and lucid'.

Case study two

A 39 year old female had been diagnosed with schizophrenia nine years previously. She had suffered with anxiety since she was 12 years old, when she had been afraid to fall asleep alone. She experienced insomnia, oppression of the chest with a sensation of suffocation, pain and burning sensations in her legs that began at midnight and worsened with exposure to heat and improved with cold, a dull pain in the lower back and knees, premenstrual tension, constipation and haemorrhoids. Her tongue was reddish and slightly purple with a thin yellow coating. Her pulse was weak, rapid and fine.

Diagnosis: Yin deficiency of the Heart and Kidney due to excessive fire, stagnation of Liver qi and phlegm, and deficiency of the Heart and Spleen.

Treatment principles: Nourish Heart yin and qi, nourish Kidney yin, clear Heart fire, soothe the Liver, resolve phlegm and open the Heart's orifices, strengthen the Spleen and calm the spirit.

Main acupuncture points: Guanyuan REN-4, Qihai REN-6, Zusanli ST-36, Taichong LIV-3, Neiguan P-6, Zhongwan REN-12, Sanyinjiao SP-6, Shenmen HE-7, Ququan LIV-8 and Yintang (M-HN-3).

Other acupuncture points: Hegu L.I.-4, Shanzhong REN-17, Dazhong KID-4, Tianfu LU-3 (a 'Window of Heaven' point that harmonises the Lung and the Liver, opens the chest and calms the spirit) and Shaohai HE-3.

Treatment course: The patient received two treatments per week for a total of 16 sessions.

Results: After her first treatment the patient had less anxiety about falling asleep alone and her leg pain was reduced. After her sixth treatment she slept better most nights, with almost no pain or burning sensation in her legs. She also reported experiencing less anxiety and a better mood. After her twelfth treatment the patient was sleeping well every night and experienced less oppression and feelings of suffocation in her chest. After her fourteenth treatment she reported falling asleep easily and sleeping well, and suffered from less anxiety and pre-menstrual tension. ■

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