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Case Report

Acupuncture as Adjuvant Therapy in Severe Depression Patients: A Case Report

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ABSTRACT

Based on WHO data, almost 20%-30% of hospital patients in developing countries experience mental and emotional disorders such as depression. Depression occurs from mild to severe, thus interfering with daily functioning. The most effective therapy for severe depression is electroconvulsive therapy (ECT). But in some cases, it cannot be done, so there needs to be alternative therapies. Acupuncture can trigger endorphins and lower cortisol levels that can affect a person's mood. In this case, we present A 50-year-old woman with a diagnosis of recurrent depressive disorder who now has severe episodes with psychotic symptoms was planned to receive ECT therapy, but the patient was not eligible. Then the patient is given drugs Fluoxetine 1x20 mg and Clozapine 1x50 mg. The patient is still silent, neither eating nor answering questions. Based on several journals found, acupuncture can be given as an additional therapy with psychopharmaceuticals. Acupuncture is beneficial in the faster improvement of depressive symptoms when compared to patients who only get antidepressants. After several acupuncture sessions, the patient's symptoms improved. So we conclude that acupuncture can be used as an additional therapeutic option, given together with psychopharmaceuticals to depressed patients.

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INTRODUCTION

Data from The Global Burden of Diseases, Injuries, and Risk Factors Study *(GBD)*said that depressive disorders are among the top ten causes that have had the largest increase in numbers of disability-adjusted life-years (DALY) from 1990 to 2019 of 369 illnesses and injuries, depression generally occurred in adolescence to old age. WHO notes that around 20-30% of hospital patients in developing countries experience emotional and mental disorders, including depression. A survey by the Association of Indonesian Mental Health Specialists (PDSKJI) stated that as many as 94% of Indonesians had experienced depression. Depression can range from mild to severe, disrupting daily functioning and, in the most severe cases, can lead to suicide (Twenge et al., 2019).

According to Beck and Alford (2009) depression is a psychological disorder with symptoms of deviations in individual feelings, cognition, and behavior (Beck, A., & Alford, 2009). Nearly 50% of all depression cases go undetected for years or are poorly controlled (Akiskal et al., 2017). Depression causes sufferers to experience health problems, including discomfort, pain, or obstacles in carrying out daily life activities. This was revealed in a preliminary study conducted on the subject. The Beck Depression Inventory-II is used to diagnose the subject (American Psychiatric Association, 2013).

Electroconvulsive therapy (ECT) is considered the most effective therapy for severe depressive episodes or if symptoms of mutism are present, so it is designated as first-line treatment. However, sometimes patients do not meet the requirements for ECT, so it is necessary to think about other alternative therapies that can help reduce symptoms of depression.

Acupuncture is a type of traditional Chinese medicine that involves stimulating specific points on the skin and has been recognized by WHO as being able to be used in various medical conditions. The name comes from the Latin word, Acus means needle and Puncture means to prick, so acupuncture means "to prick with a needle" (Djuharto, 1982). Various studies have shown that acupuncture is proven to be a natural, safe, and legal method to use (Smith et al., 2018). This therapy works by stimulating the body to release endorphins so that it can help the body relax (Ma, 2004). Apart from that, acupuncture also reduces levels of the hormone cortisol and increases serotonin levels, which are related to a person's mood.

The use of acupuncture for people with mental disorders in Western medicine is increasing, although drugs remain the main basis (Kane, 1999). Positive results for the use of acupuncture were found in the treatment of sleep disorders (Smith et al., 2018). Apart from that, acupuncture is also claimed to be effective in improving mood in anxious and depressed patients (Unutzer et al., 2000).

CASE REPORT

The subject was a 50-year-old woman, a housewife who was brought by her child to the ER at RSJ Dr. Arif Zainuddin Surakarta because she had not wanted to eat for 2 days before admission. The patient does not talk and often paces around like a confused person. According to her daughter, the patient experienced a change in behavior because she thought about her daughter who had graduated from college but was not yet working, and also thought about his husband who worked overseas for a long time and didn't come home for a long time

The patient was hospitalized and planned to receive electroconvulsive therapy (ECT), but this was canceled because the patient did not

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meet the requirements and was then given acupuncture therapy. The patient also received Fluoxetine 1x20 mg and Clozapine 1x50 mg. The patient was treated together with the internal department and received RL 24 tpm infusion therapy, Omeprazole injection /12 hours, Curcuma 3x1 tablet.

Electroacupuncture was performed at the abdominal and leg acupoints for 30 minutes, with a therapy interval of 2 days. The patient received a total of eight acupuncture sessions before finally being allowed to go home. After 2 acupuncture sessions, the patient started to talk and said she felt sad since she was at home. The patient thought about her daughter, who had graduated from college 3 months ago, but did not immediately find a suitable job. The patient wants her to work quickly, but on the other hand, she does not want her child to work outside the city. The patient was also sad because her husband had not been home for a long time. The patient's husband works in Maluku as a construction worker and has not been able to go home because of financial constraints.

Patients become less enthusiastic about doing activities, feel tired quickly, and spend more time alone in their rooms. 1 month before being hospitalized, the patient still often visited her sister's house to just tell stories or shop for vegetables near her house. However, since last week she has not wanted to leave the house at all, is more silent, and sometimes starts hearing sounds that make her confused. The voice told the patient to leave the house, so the patient paced back and forth. There was also a voice telling the patient to jump into the well near her house.

The patient experienced the same complaint about 17 years ago when her mother died; at that time, the patient felt so sad that he wanted to end her life by tying a rope around his neck. Since then, the patient has been going to an asylum for treatment, but not regularly. Two years ago, the patient also wanted to commit suicide by jumping into a well, but a neighbor found out and immediately stopped her. The patient has given informed consent and also given written approval.

DISCUSSION

Depression is a condition that affects a person affectively, physiologically, cognitively, and behaviorally, thereby changing the usual patterns and responses. In depression, there is a disturbance in the hypothalamic-pituitary-adrenal (HPA) axis (Stephens et al., 2014). The hypothalamus releases corticotropin-releasing hormone (CRH), which stimulates the anterior pituitary gland to release adrenocorticotropic hormone, and induces the release of cortisol from the adrenal glands. The negative feedback loop of the HPA axis is controlled by the binding of cortisol to the anterior pituitary gland and hypothalamus. Under normal conditions, cortisol binds to glucocorticoid receptors and acts as an anti-inflammatory agent by inhibiting lymphocyte proliferation and decreasing the secretion of pro-inflammatory cytokines such as IL-6, IL-12, IFN-γ, and TNF-α (Hannibal & Bishop, 2014). However, in depressive conditions, the HPA axis is dysregulated, becoming hyperactive and causing hypercortisolemia. Excessive cortisol secretion can lead to compensatory downregulation of glucocorticoid receptors or resistance, which inhibits cortisol binding. Excess cortisol increases the affinity of the mineralocorticoid receptor, and when bound to the mineralocorticoid receptor, cortisol has proinflammatory effects. Elevated levels of inflammatory byproducts can cause damage to glucocorticoid receptors, ultimately leading to further dysfunction of the cortisol pathway. The negative feedback loop of the HPA axis

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is also disrupted by inhibited glucocorticoid receptor binding, and normally sufficient cortisol levels are no longer able to inhibit CRH release (Yang *et al.,* 2012). This can ultimately activate inflammatory mast cells and stimulate the release of norepinephrine from the locus coeruleus.

Acupuncture is a type of Chinese medicine (Traditional Chinese Medicine/TCM) which has been recognized as an alternative therapy that is widely used in clinical practice (WHO, 2024). Acupuncture has been shown to exert antidepressant effects by regulating the expression of basic fibroblast growth factor in the rat hippocampus (Yao et al., 2021). Electroacupuncture therapy has also been shown to provide antidepressant effects by increasing synaptic plasticity and gene expression (Jiang et al., 2020), reducing HPA axis hyperactivity, reducing plasma corticosterone levels (Li et al., 2020), and reducing tumor necrosis factor central and peripheral (Guo et al., 2020). This therapy also affects modulating serotonin and norepinephrine. Initial findings came from Han (1986), that acupuncture or electroacupuncture accelerates the synthesis and release of serotonin and norepinephrine in the central nervous system by activating neurons in the dorsal part of the raphe nucleus in the midbrain via spinoreticular tract neurons. In addition, Park et al, in 2012, reported that low dopamine levels in mice separated from their mothers increased after the mice received acupuncture stimulation. Most importantly, a number of studies have investigated the action of acupuncture on the HPA axis (Yang et al., 2012). Treatment with electroacupuncture significantly reduced peripheral ACTH and corticosterone in animals with chronic cold stress compared with untreated or "sham" treated animals (Eshkevari et al., 2013).

From a systematic review conducted by Zhang et al (2021), of 12 studies, 8 of them used electroacupuncture and the remaining 4 used manual acupuncture. The frequency range of electroacupuncture stimulation used is 2-50 Hz. Meanwhile, the most frequently used acupuncture points are the points on the head, namely GV20 (Baihui) and GV29 (Yintang) (Zhang et al., 2021). Results from head imaging have shown that stimulation of GV20 may influence the functional connectivity between the amygdala and certain brain areas in patients with major depressive disorder, and may enhance anti-inflammatory and anti-depressant effects by reducing the levels of inflammatory factors in brain regions associated with emotion (Wong et al., 2021). Meanwhile, the body points that are often used are the stomach points RN10 (Xiawan), RN6 (Qihai), RN13 (Shangwan), ST24 (Huaroumen), RN12 (Zhongwan), and Qipang. This is because the stomach point is said to be more effective in regulating the flow of Qi, so it can reduce depression. The clinical trial used had a treatment period of 3-12 weeks, an average of 6 weeks of intervention with a minimum interval of 2 times a week and a duration of 30 minutes per session. This systematic review concludes that although acupuncture cannot completely replace antidepressants, it has the potential to be superior to antidepressants in terms of onset and long-term efficacy.

According to Armor et al (2019) acupuncture shows clinically relevant benefits in reducing the severity of depression when compared to administering antidepressants alone. The recommended interval for acupuncture therapy refers to research originating from China, namely, at least twice a week. In addition, acupuncture therapy combined with antidepressants at the start of treatment can help reduce drug side effects and show earlier

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improvement in symptoms when compared to the group that only received antidepressants (Armour *et al.,* 2019).

Apart from measuring improvements in depressive symptoms in the group that received a combination of antidepressants and acupuncture compared to the antidepressant monotherapy group, Wong et al (2020) also measured changes in the concentration of oxyhemoglobin/dioxyhemoglobin in the brain during resting conditions. Oxyhemoglobin levels indicate functional connectivity between parts of the brain. In previous research, it was said that in depressed patients, there were disturbances in the functional relationships of the Cognitive Control Network (CCN), namely the Dorsolateral Prefrontal Cortex (DLPFC), Dorsal Anterior Cingulate Cortex (dACC), and Dorsal Parietal Cortex (DPC). This disorder causes emotional and cognitive dysregulation in depression sufferers. The conclusions of this journal show that the combination of acupuncture can improve clinical symptoms more significantly and better connectivity function in the DLPFC. The acupuncture in this journal was carried out for 3 weeks, with a total of 6 sessions (Wong et al*.,* 2021).

In this case report, there was a 50-year-old woman who experienced severe depression, and it was not possible to receive electroconvulsive therapy. Therefore, the author is looking for alternative therapies that can be given to patients while being treated at RSJD Soerakarta. From the author's research based on EBM, electroacupuncture therapy available at RSJD can be given as an additional therapy, given together with psychopharmaceuticals. The patient, who initially had mutism, after undergoing two acupuncture sessions, began to talk, and his condition improved after receiving four acupuncture sessions. Electroacupuncture was performed at the abdominal and leg acupoints for 30 minutes, with a therapy interval of 2 days. The patient received a total of eight acupuncture sessions before finally being allowed to go home.

Apart from receiving antidepressants, the patient in this case also received the additional antipsychotic Clozapine. This therapy is given based on consideration of the presence of psychotic symptoms and patients who have a history of suicide. Clozapine is a class of atypical antipsychotics that work as a 5HT2A and D2 receptor antagonist. This drug works directly and can bias the effects of acupuncture. So, to confirm the effects of acupuncture itself, further research is needed using an RCT (Randomized Controlled Trial).

CONCLUSION

Acupuncture can be used as an additional therapy option, given together with psychopharmaceuticals to depressed patients.

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