



CASE REPORT

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Our anesthesia management in a bipolar pregnant case in third trimester

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Abstract

Bipolar disorder is one of the most common psychiatric disorders during pregnancy. Electroconvulsive therapy (ECT) is a potent treatment option for pregnant bipolar cases who do not respond to medical treatment and have a high risk of suicide. In this report, we aimed to present the anesthesia management of a 34-week pregnant woman with bipolar disorder who underwent ECT due to the increase in the frequency of manic episodes despite medical treatment. Induction of labor remains an important risk in the application of ECT in third-trimester pregnant women. Further large-scale randomized controlled studies using different anesthetic agents are needed.

Keywords: Electroconvulsive therapy, pregnant bipolar, premature birth

Introduction

Bipolar disorder is one of the leading causes of psychiatric disorders with a high incidence (43%) during pregnancy [1]. Women with bipolar disorder are at increased risk for relapse during and after pregnancy. Medical management of bipolar cases during pregnancy and lactation poses a serious clinical challenge due to the changes in drug metabolism and concerns about potential teratogenicity in the fetus [2]. The use of ECT remains current due to the inadequacy and potential risks of medical treatment [3].

ECT is a potent treatment option for pregnant psychiatric patients who do not respond to medical treatment, have malnutrition and a high risk of suicide [4].

Many studies have recommended ECT as an alternative treatment for major depression and bipolar disorder during pregnancy, and

this method has been reported to be a high-effective and low-risk technique in all trimesters of pregnancy and in the postpartum period [5].

In this report, we aimed to present the anesthesia management of a 34-week pregnant woman with bipolar disorder who underwent ECT due to the increase in the frequency of manic episodes despite medical treatment.

Case Report

ECT was planned by the psychiatry clinic in a 36-year-old 34-week pregnant patient who was followed up with the diagnosis of bipolar disorder and treated with haloperidol 10 mg/day and Biperiden hidroklorür 4mg/day, because of the increased frequency of manic episodes and the lack of adequate response to drug treatment. After explaining the procedure and possible risks to the patient and her relatives, written consent was

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obtained for the ECT procedure and anesthesia. Before and after each ECT session, NST (Non-stress test) was performed by the Gynecology and Obstetrics Clinic to evaluate uterine contraction and fetal status. In addition to adequate fasting time (8 hours), i.v. H₂ receptor antagonist was administered 30 minutes before anesthesia to prevent the risk of aspiration. The 20-minute NST was performed by the Gynecology and Obstetrics Clinic before each ECT session and 6 accelerated reactive NSTs without uterine contractions were recorded. Then, the patient was taken to the ECT room before premedication in the operating room, and standard monitoring was performed with electrocardiography (ECG), pulse oximetry (SpO₂) and non-invasive blood pressure (NIBP) measurement. Case baseline vitals were recorded as heart rate: 73/min, BP: 125/81 mmHg, and SpO₂: 96. Preoxygenation was provided with 4 L/min O₂.

Propofol 1mg/kg i.v. was administered for anesthesia induction and succinylcholine 1mg/kg i.v. as the neuromuscular agent. The patient was ventilated with a mask using 100% oxygen with the EtCO₂ in the range of 35-40. Electrical stimulus was delivered via bifrontotemporal electrodes using a bipolar ECT device. Heart rate, oxygen saturation and mean arterial pressure of the patient were recorded before and after the induction of anesthesia, immediately after the seizure, at the 1st, 3rd and 10th minutes after the seizure, and in the postanesthetic care unit (PACU) (10th min). electroencephalogram (EEG) and electromyogram (EMG) records were kept in the follow-up of seizure activities. Eye opening time, spontaneous respiration time, orientation time, and duration of stay in the PACU were recorded. NST, which was evaluated for 20 minutes after ECT application, was reported as reactive NST with 5 30-unit uterine contractions (mild activity) and 7 accelerations. The second session was performed after 72 hours. Approximately after 24 hours the ECT application, the patient was taken to an emergency cesarean section under general anesthesia by Gynecology and Obstetrics Clinic with the pre-diagnosis of preeclampsia, due to the increase in uterine contractions and the hypertensive course of the pregnant woman. A baby with an Apgar score of 9 was delivered. The patient with stable vital signs was taken to the ward. In the postpartum period, 9 sessions of ECT were applied three times a week, the first session being on the postoperative 4th day, to create sufficient seizure time.

Discussion

Bipolar disorder is a serious chronic mood disorder characterized by episodes of mania, hypomania, and depression. It usually starts in early adulthood, and the risk of relapse is high especially in the postpartum period and in primiparous women. [6]. Psychiatric disorder that is not treated during the peripartum period can have serious consequences such as lack of weight gain, premature birth, abuse of tobacco, alcohol and other drugs, suicide and infanticide. Drug therapy is complex during pregnancy, especially in the first trimester, due to possible teratogenic effects and changes in maternal physiology. Benzodiazepines, antipsychotics, lithium and other mood stabilizers used in the treatment of bipolar

disorder are among the drugs with a teratogenic risk in the first trimester [7].

Women with bipolar disorder who discontinued medical therapy before or during pregnancy have a 71% risk of relapse with new episodes, most often in the first trimester. Recurrent disease during pregnancy is associated with a 66% increased risk in the postpartum period [8].

ECT is an effective option for perinatal patients with severe mood episodes who are unresponsive to medication, unable to meet their individual needs, and for suicidal or psychotic patients [9]. Our patient with bipolar affective disorder was being treated with medication by the Psychiatry Clinic, and ECT was planned because the frequency of manic episodes increased despite medical treatment.

In his study, Miller reported fetal complications related to ECT in 28 of 300 pregnant women who received ECT. The most common fetal complication was fetal bradycardia [10].

Pompili et al. [11] examined 184 pregnant ECT cases and reported fetal arrhythmia in 9 cases and premature delivery in 7 cases.

In the case we presented, a 34-week pregnant woman was evaluated with NST before and after each session by the Obstetrics and Gynecology Clinic. As uterine contractions increased 24 hours after the second session of ECT and the patient was hypertensive, she was taken to emergency cesarean section with the preliminary diagnosis of preeclampsia.

It is aimed to create convulsions for a successful ECT application. Although the relationship between the efficacy of the treatment and the duration of the convulsion is controversial, the shortest recommended time is 25 seconds. To prevent extremity traumas that may develop during convulsions and due to respiratory problems, the procedure should be performed under general anesthesia and muscle relaxation [12,13].

Anesthetics are used during ECT application affect threshold and duration of seizures [14]. In an 18 randomized controlled study comparing the effects of intravenous anesthetic agents (Methohexital, propofol and thiopental) [15], it was reported that propofol shortened the seizure duration more than Methohexital, and there was no difference between thiopental and propofol. Propofol was found to be faster at recovery from anesthesia than thiopental. The mean durations of EMG and EEG seizure activities in our case were 32 and 34 seconds, respectively

In a meta-analysis comparing sevoflurane and i.v. anesthetics in ECT application, with a total of 12 randomized controlled studies (377 cases and 1339 ECT sessions), it was observed that sevoflurane significantly reduced EEG seizure durations compared to intravenous anesthetics [16].

Sevoflurane can be recommended, especially in the last trimester of pregnancy, as it reduces ECT-induced uterine contractions. Propofol is an ideal agent preferred for ECT in pregnant women.

It provides rapid induction and recovery and prevents nausea and vomiting [17]. In our patient, we used 1mg/kg propofol. Neuromuscular blockers are required to limit motor activity during ECT. Succinylcholine is the most preferred depolarizing muscle relaxant due to its rapid onset and short duration of action, and its transfer to the placenta is negligible due to its high water solubility. It is administered at doses of 0.75-1.5mL/kg in ECT [18]. In our patient, we used 1mg/kg succinylcholine. The time for spontaneous breathing after ECT was 107 seconds, and the time for eye opening with stimulus was 204 seconds. In our case, who was in the last trimester and had a high risk of aspiration, an 8-hour fasting period was waited and H₂ receptor antagonist was administered 30 minutes before the intervention to prevent this risk.

In a study [13], 67 adverse events were reported in 169 pregnant ECT cases, and the most common adverse event was reported as premature birth in 67 cases (19/28%). In our case, delivery was terminated by C/S due to premature labor (34 weeks) in line with the literature.

Conclusion

Induction of labor continues to be an important risk in the application of ECT in third trimester pregnant women. Therefore, there is a need for further more comprehensive randomized controlled studies in which seizure duration is taken into account and different anesthetic agents are used. In addition, the mother and fetus should be closely monitored by an experienced team after ECT.

Conflict of interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Informed Consent

Written consent was obtained from the patient and his parents.

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