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Case Report

Anaesthesia for Caesarean Section of Pregnant Women with Idiopathic Thrombocytopenic Purpura

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Abstract

Women with idiopathic thrombocytopenic purpura (ITP) may become pregnant, or the disease may occur for the first time during pregnancy. Thrombocytopenia is usually noticed in the first months of pregnancy and the platelet count is often quite low. In this case report, we described the anaesthetic method for caesarean section in a pregnant woman at 38 weeks of gestation with refractory ITP.

Key Words: Thrombocytopenia, ITP, caesarean section, anesthesia

Introduction

Idiopathic thrombocytopenic purpura (ITP) frequently occurs in women in reproductive age. Therefore, women with a history of ITP or those who were diagnosed with ITP during pregnancy require anaesthesia for caesarean section or natural birth (1). ITP does not affect normal foetal development and does not cause postpartum haematological complications in newborns. However, due to its risk to induce bleeding during the peripartum period, considering the fact that approximately 15% of pregnant women have a platelet count lower than 50000 μL^{-1} at the time of delivery, ITP requires careful attention (2, 3). We aimed to present our experience regarding the anaesthetic management for caesarean section in a pregnant woman at 38 weeks of gestation with treatment-resistant ITP.

Case Report

A 32-year-old pregnant woman at 37 weeks and 4 days of gestation, who was 75 kg in weight and gravida (G) 2, para (p) 0 ,was admitted to our hospital and was scheduled for caesarean section. She had a 5 year history of ITP, which was refractory to steroids and there were no clinical signs of coagulation disorders. However, as the platelet count was 12000 μL^{-1}, a haematology consultation was requested, and according to the suggestions, the patient was started on intravenous immunoglobulin treatment 30 g daily, for 5 days. However, as the platelet count increased to 55000 μL^{-1} at 3 days of treatment, the gynaecologists did not want to prolong the time until delivery and risk the pregnancy any more, and scheduled the patient for caesarean section. Considering the general status of the patient, we approved this decision to perform early caesarean section. Before the operation, the patient received one unit of pooled platelet suspension, informed consent of the patient was obtained and the patient underwent caesarean section under general anaesthesia.

The patient was premedicated with a H_2 blocker and metoclopramide for aspiration prophylaxis and taken to the operating room. After routine monitoring of vital parameters, two venous lines were introduced using 18 and 16 gauge peripheral venous catheters and crystalloid infusion was started. Before the induction of anaesthesia, blood pressure was 120/60 mmHg, heart rate 68 beats/min, and blood oxygen saturation (SpO_2) 99%. The patient was preoxygenated with 100% oxygen for 3 minutes, anaesthesia was induced with 375 mg of thiopental and 100 mg of succinylcholine, and endotracheal intubation was performed. Maintenance of anaesthesia was performed with sevoflurane 1-2% in a 50% air/oxygen mixture. A baby girl 2450 g in weight was born 10 minutes after the induction of general anaesthesia; 1st and 5th minute APGAR scores were 9 and 10, respectively. After the baby was born, remifentanil infusion at 0.2 $\mu g\ kg^{-1}\ min^{-1}$ was started while sevoflurane inhalation was continued. The patient was given an intravenous bolus of methergine 0.2 mg and oxytocin 5IU, followed by infusion of 20 IU oxytocin in 500 mL 0.9% NaCl solution. Hemodynamic parameters were stable throughout the operation. Totally, she received 1500 mL of 0.9% NaCl and 500 mL of Isolyte S and had 600 mL of urine output. A total volume of 1100 mL of hemorrhagic fluid was aspirated, including irrigation solution. The patient was extubated uneventfully at the end of the operation. Controlled postoperative analgesia was provided using meperidine. During hospital stay, she had an uneventful course and after the completion of the IVIG treatment (5 days in total), the platelet count was increased to 79000 μL^{-1}. The newborn also had an uneventful course for two days after the birth and her haematological parameters were in normal ranges. Both the mother and the baby were discharged on the third postpartum day and were given appointment for follow-up visit.

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Discussion

Idiopathic thrombocytopenic purpura is characterized with thrombocytopenia of unknown origin (4). Its frequency among adult population ranges between 1.6 and 6.6/100000 per year (5, 6). The incidence of pregnant women with ITP is 1-2/1000 whereas ITP comprises 5% of pregnancy related thrombocytopenia cases, and 15% of pregnant women with ITP had platelet counts lower than 50000 μL^{-1} at the time of birth (2, 3).

On the other hand, gestational thrombocytopenia is observed in 5.8% of all pregnancies and comprises 75% of pregnancy related thrombocytopenia cases (7). However, gestational thrombocytopenia can only be diagnosed by exclusion of other causes of thrombocytopenia. It usually arises during the second and third months of pregnancy. Its course is mild and is not associated with an increased risk of bleeding. In general, platelet count is below 70000 μL^{-1} and return to its normal range within 12 weeks of birth. The patient has no history of thrombocytopenia before pregnancy. However, in some cases, a mild thrombocytopenia can be detected during the previous pregnancy.

Idiopathic thrombocytopenic purpura is an autoimmune disorder, which is associated with the production of antiplatelet immunoglobulin (IgG). The pathogenesis of ITP in pregnancy is similar to that of non-pregnant patients. It is characterized by the presence of autoantibodies against platelet membrane glycoproteins, mainly GPIIb/IIIa and GPIb/IX, and removal of these IgG coated platelets by the reticuloendothelial system (7). The laboratory findings consist of isolated thrombocytopenia before pregnancy and during early pregnancy. Despite normal haemostasis, clinical signs of altered coagulation such as petechiae and easy bruising or prevention of bleeding in pregnant women with ITP who have a platelet count <20000 comprises the most important issues of anaesthesia practice and these patients require urgent management (8, 9). Also, foetuses of these mothers are also at increased risk for thrombocytopenia and bleeding. Maternal ITP may be treated with steroids (1 mg kg^{-1} day^{-1}, minimally effective dose which decreases gradually after 2-3 weeks) or high dose IVIG (0.4 g kg^{-1} day^{-1}, for 5 days) (10). Immunoglobulin treatment increases the platelet count in 75% of the patients and this increase may last up to 3-6 weeks. In addition, IVIG treatment may also be necessary after pregnancy. There has been no clinical study to compare the effects of IVIG and steroids in treatment of ITP during pregnancy. Occasionally, splenectomy may be required during pregnancy and the operation may be performed laparoscopically in the 2nd trimester (11). Platelet transfusion is generally contraindicated, but it may be life-saving in cases of extremely low platelet count and acute bleeding (10).

Regional anaesthesia is absolutely contraindicated in case of low platelet count and severe coagulopathy. However, risks and benefits of regional anaesthesia should individually be assessed in patients who had low platelet count but no clinical signs of coagulation disorders (12).

According to the guidelines of British Committee for Standards in Haematology, a platelet count of at least >80.000 μL^{-1} was recommended for the use of neuraxial techniques in pregnant women with ITP (10). However, most anaesthesiologists and authors reported that they used neuraxial blockade techniques, particularly spinal anaesthesia, in healthy asymptomatic pregnant women with ITP who had platelet counts >50000 μL^{-1} (10, 13, 14). Orlikowski et al. (15) suggested the use of thromboelastography (TEG), which may also be applied at bedside. According to this, it is suggested that a maximal amplitude of 53 mm in TEG means that platelet count is 54000 μL^{-1} and coagulation will be sufficient. The same authors also argue that regional anaesthesia can be applied in pregnant women with platelet counts >75000 μL^{-1}. Frölich et al. (16) reported that upon observing the normal TEG, they used neuraxial anaesthesia in two pregnant women with platelet counts <70000 μL^{-1} and discharged the patients uneventfully. The authors concluded that coagulation tests alone are not effective in predicting the risk of epidural or spinal haematoma following neuraxial block, however, a normal TEG tracing, if supported by laboratory findings coherent with normal clinical findings, may facilitate a decision to conduct a neuraxial technique (16). Supporting those authors, Steer (17) suggested that TEG might be used as a rapid, reliable and cost-effective tool to obtain coagulation data, which is required in obstetric patients for optimal obstetric and anaesthetic management.

Beilin et al. (18) reported that they performed epidural analgesia for vaginal birth in 30 pregnant women with platelet counts ranging from 69.000-98.000 μL^{-1} within 3 years time, and they did not observe any complications. Moeller-Bertram et al. (12) reported a pregnant woman with ITP who had a platelet count of 26000 μL^{-1}, which was unknown before the delivery. They reported that the epidural catheter introduced to provide labour analgesia did not result in any neurologic complications.

A transient increase in platelet count may be achieved by using intravenous immunoglobulin, plasma exchange and steroids. If surgery will be performed in the presence of active bleeding and if the platelet count is below 50000 μL^{-1} during anaesthesia induction, platelet suspension should be given during induction of anaesthesia.

In order to avoid the risk of neurological complications associated with regional anaesthesia, we thought that general anaesthesia would be more reliable in our patient as her platelet count decreased to 12000 μL^{-1} during gestational period, but increased only up to 55000 μL^{-1} by administration of IVIG and platelet transfusion in the preoperative period. In a retrospective series of 28 pregnant women with ITP, Ramos et al. (19) performed 17 vaginal births and 11 caesarean sections within 10 years. They avoided regional anaesthesia/analgesia in patients who had platelet counts lower than 70000 μL^{-1} and performed general anaesthesia. While performing general anaesthesia in patients with low platelet counts, care should be taken against traumatic injury to the upper airways during endotracheal intubation as use of laryngoscope may cause bleeding (19). In our patient, no sign of traumatic injury to the upper airways was encountered during endotracheal intubation and extubation.

Neuraxial blocks (NAB), when compared to general anaesthesia and/or systemic analgesia, have a number of benefits including superiority in providing postoperative analgesia, reducing opioid related adverse effects and decreasing mortality and morbidity. These advantages of neuraxial block techniques become more important in obstetric anaesthesia considering the patients' satisfaction. Choi et al. (4) sought to determine the perioperative management and the incidence of haemorrhagic complications in a meta-analysis of patients with haemophilia, Von Willebrand's disease and ITP. They reported that haemorrhagic complications did not occur and transfusion of platelets did not affect outcomes in 507 patients, out of whom 324 were obstetric patients with ITP; 282 underwent epidural and 42 underwent spinal anaesthesia. Rasmus et al. (20) observed that risk of neurological complications did not increase after regional anaesthesia in 24 pregnant women who had platelet counts between 15000 and 99000 μL^{-1} during the peripartum period.

Previous reports of success at neuraxial block in pregnant women with low platelet counts mostly come from presentations of single or few cases and should be carefully interpreted. Lack of information regarding the development of haematoma or paraplegia does not mean that these complications have never occurred. The readers may be misled because it is less preferred in anaesthesia practice to announce unsuccessful experiences and cases in which complications occurred whereas successful experiences are usually reported. Although there have been proponents of regional anaesthesia in cases with severe thrombocytopenia, we believe that we made the right decision to perform general anaesthesia in our patient, based on the above-mentioned reasons.

Conclusion

Management of anaesthesia in caesarean section should not be based on a single parameter in pregnant women with severe thrombocytopenia. Besides the platelet count, other laboratory findings should be paired with TEG and clinical findings and a decision should be rendered after considering the patient-specific risks and benefits regarding the use of general or regional anaesthesia.

Conflict of Interest
No conflict of interest was declared by the authors.

Peer-review: Externally peer-reviewed.

Informed Consent: Written informed consent was obtained from patients who participated in this case.

Author Contributions
Concept - Ş.Ö.; Design - Ş.Ö., B.K.; Supervision - B.K.; Funding - Ş.Ö., B.K., B.Ş.; Materials - B.Ş., Ş.Ö., B.K.; Data Collection and/or Processing - B.Ş.; Analysis and/or Interpretation - B.K.; Literature Review - Ş.Ö., B.K., B.K.; Writer - Ş.Ö.; Critical Review - B.K.; Other - Ş.Ö., B.Ş., B.K.

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