CASE REPORT

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Olanzapine-Associated Preterm Delivery in a Woman with Intellectual Disability

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Abstract

Psychiatric management during pregnancy requires careful balancing between maternal and mental health needs and potential risks to the fetus. Antipsychotic medications, particularly second-generation agents such as olanzapine, are frequently prescribed but carry significant metabolic and obstetric risks. We describe a 23-year-old woman with mild intellectual disability who presented at 32 weeks of gestation with bilateral pitting oedema, decreased fetal movements, progressive weight gain, hyperglycaemia, and oligohydramnios. She was on Olanzapine 2.5 mg daily following discontinuation of risperidone due to psychiatric deterioration with recurrent hypertension and worsening oligohydramnios. An emergency caesarean section was performed for fetal compromise, resulting in the delivery of a preterm neonate weighing 1.8 kg with APGAR Score of 6 and 7. No congenital malformations were observed. Postoperative complications included fluid overload with mild pleural and pericardial effusions, which resolved with conservative management. This case underscores the complexity of managing antipsychotic therapy during pregnancy, particularly in women with intellectual disability. It highlights the risks of olanzapine-associated metabolic and obstetric complications, and emphasizes the importance of gradual dose adjustment, pharmacist-led medication review, and coordinated multidisciplinary care to optimize maternal and fetal outcomes.

Key words: Olanzapine, intellectual disability, preterm birth, oligohydramnios.

Introduction

Pregnancy in women with intellectual disabilities (ID) presents a distinct set of clinical, social, and ethical challenges. Cognitive limitations may impede their ability to seek timely prenatal care, understand medical advice, and communicate symptoms effectively, thereby increasing the risk of adverse maternal and fetal outcomes[1]. Moreover, many women with ID have coexisting psychiatric disorders, such as schizophrenia, mood disorders, or behavioral dysregulation, which necessitates long-term pharmacological management[2].

Second-generation antipsychotics (SGAs), such as olanzapine, are commonly prescribed to these patients because of their efficacy in stabilizing mood and managing psychotic symptoms, with a relatively favourable side-effect profile compared to first-generation agents. However, the use of SGAs during pregnancy is concerning[3]. Olanzapine, in particular, is associated with metabolic disturbances, including excessive weight gain, gestational hypertension, hyperglycaemia, and oligohydramnios. These conditions are known contributors to obstetric complications such as preterm labor, preeclampsia, and increased rates of caesarean section[4].

It's use during pregnancy, also raises concerns regarding potential teratogenicity and perinatal outcomes. Current literature suggests that while olanzapine crosses the placenta, most studies have not demonstrated a significant increase in major congenital malformations. A review of observational studies and case series indicates that olanzapine exposure *in utero* may be associated with risks, such as low birth weight, gestational diabetes, and neonatal adaptation syndrome, although these findings are not consistent across all studies[5]. Overall, the available evidence supports a relatively favourable safety profile compared to other antipsychotics, but caution and individualised risk-benefit assessment remain crucial. The World Health Organisation (2023) estimates that approximately 10% of pregnant women experience mental health disorders globally, underlining the importance of integrating psychiatric care into obstetric management. In recent years, the increasing use of antipsychotics among pregnant populations reflects the growing recognition of the need to treat maternal mental illness, but it also demands careful monitoring and interdisciplinary collaboration to ensure the safety of both the mother and fetus[6].

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This case report details the clinical course of a 23-year-old pregnant woman with mild intellectual disability who developed complications, including oligohydramnios, weight gain, and hypertension during the third trimester while on olanzapine therapy, ultimately resulting in preterm delivery via emergency caesarean section. This case highlights the complex interplay between psychiatric stabilisation and obstetric risk in this vulnerable population and emphasizes the importance of individualised multidisciplinary care.

Case report

A 23-year-old woman had a history of mild intellectual disability (IQ score: 65) and behavioural disturbances over the past six years. Her psychiatric condition had been previously managed with risperidone (2 mg once daily), which was discontinued during the first trimester of her current pregnancy. Following this, she experienced deterioration in her mental health and was subsequently started on olanzapine 20 mg once daily at 29 weeks of gastation. Additional medications included folic acid, calcium, vitamin B complex, and iron supplements. Obstetrically, she was gravida 2, para 2, living 1, with no history of abortions (G2P2L1A0). She had received tetanus toxoid doses and had a regular menstrual history with moderate flow till her pregnancy. Her pre-pregnancy weight was 73 kg, which increased to 79 kg on admission, with a BMI of 33.2 kg/m^2, categorizing her as class I obesity. At 32 weeks of gestation, the patient complained of bilateral pitting oedema persisting for four days, along with decreased fetal movements and noticeable weight gain. Furthermore, obstetric ultrasound showed a significant reduction in the amniotic fluid index (AFI) from 10 to 5 cm, consistent with oligohydramnios, a condition linked to fetal compromise and a known risk factor for preterm labor.

Investigations

Laboratory investigations revealed several abnormalities at admission. Peripheral smear analysis indicated moderate macrocytic anaemia, which is typically associated with nutritional deficiencies such as vitamin B12 or folate, both of which are critical during pregnancy. Although the exact haemoglobin level was 11.4 g/dL, the presence of macrocytic anaemia suggested a suboptimal haematologic status. Additionally, the patient exhibited fasting hyperglycaemia, with a blood glucose level of 170 mg/dL, exceeding the normal range (70 - 100 mg/dL), indicating impaired glucose control. These findings collectively reflect the physiological stress and complications that contribute to high-risk pregnancies.

Management and outcome

During hospitalisation, the patient underwent multiple clinical interventions to manage the psychiatric and obstetric complications. On Day 3, the insulin dose was increased from 5 to 7 units owing to elevated fasting blood glucose (170 mg/dL). On Day 9, she developed adverse effects of olanzapine, including weight gain, hypertension, oligohydramnios, and decreased fetal movement, prompting emergency cesarean section. She also experienced a hypersensitivity reaction to ampicillin, presenting with facial puffiness and rashes. An urgent cesarean section was done at gestational week 32 due to preeclampsia. The newborn's birth weight was 1,800 g, and the APGAR scores at 1 and 5 min were 6 and 7, respectively. No growth restriction or developmental abnormalities were observed at birth.

Post-operatively, a medication error involving prolonged intravenous fluid administration led to mild pleural and pericardial effusions, which resolved after the fluid was stopped. On Day 16, tramadol was replaced with paracetamol to address opioid-induced headache. Throughout her stay, the patient received antenatal steroids (dexamethasone) for fetal lung maturity, and pharmacist-led interventions ensured safe medication use, dose adjustments, ADR monitoring, and proper counselling for postnatal and psychiatric follow-up.

Table I: Timeline of Drug treatment.

Gestational age (week + days)	29	29 + 6	30 + 5	**32 (admission)**
Tapering of olanzapine	Olanzapine - 20 mg - OD	Olanzapine - 15 mg - OD	Olanzapine - 15 mg - OD	Olanzapine - 2.5 mg - OD

Discussion

This case highlights the complexities of managing psychiatric disorders in pregnant women with intellectual disabilities and underscores the clinical challenges posed by antipsychotic medications such as olanzapine[7,8]. One of the most significant observations in this case was the abrupt switch from risperidone to olanzapine, which led to complications including weight gain, oligohydramnios, hypertension, and ultimately, preterm labor[9,10].

Tapering antipsychotics during pregnancy should be performed with extreme caution. Sudden discontinuation or rapid dose reduction, as observed with risperidone in this case, increased the risk of withdrawal symptoms and relapse of psychiatric illness[11]. According to evidence-based guidelines, a gradual tapering schedule, with close monitoring, is crucial, particularly during the perinatal period. A multidisciplinary approach involving obstetricians,

psychiatrists, and clinical pharmacists is vital for optimizing maternal and fetal outcomes[12].

Several case reports and reviews in the literature support an association between olanzapine metabolism abnormalities and neuropsychiatric symptoms, particularly in individuals with underlying vulnerabilities. For instance, elevated homocysteine levels, often linked to olanzapine metabolism, have been correlated with an increased risk of schizophrenia and other psychotic disorders[13]. Similar cases have reported the emergence or exacerbation of psychosis following the excessive intake of olanzapine or related compounds. In terms of antipsychotic management, while the chosen regimen in the current case may have been effective, alternative options could have included atypical antipsychotics, such as aripiprazole or lurasidone, which offer a more favourable metabolic profile and lower risk of extrapyramidal symptoms. These agents could be considered especially in patients with concerns about long-term side-effects or co-morbid metabolic conditions[14].

Conclusion

This case highlights the delicate balance required to treat pregnant women with psychiatric co-morbidities. When necessary, antipsychotic medications must be prescribed and tapered based on clinical judgment to prevent maternal and fetal complications. This case reinforces the importance of integrating clinical pharmacy services into obstetric care teams, particularly for high-risk pregnancies involving complex medication regimens.

Declaration of patient consent

Written informed consent was obtained from the patient representative for publication of this case report. The patient's identity was protected and no identifiable information was disclosed.

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