

Efficacy and Safety of Buprenorphine Maintenance Therapy during Pregnancy: A Case Report

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Abstract

The misuse of opioids during pregnancy has been associated with maternal, fetal and neonatal risks. Buprenorphine substitution has not been proven teratogenic during pregnancy. This case report highlights a multipara female who gave birth to four children while using Buprenorphine. All of her children were exposed to buprenorphine during pregnancy and they all appear healthy and have met normal developmental milestones. As such, a case can be built supporting the notion that the use of opioid maintenance treatment at the time of conception and during pregnancy is not likely to have negative effects on pregnant women or newborns. In this case, measurements such as the week of delivery, birth weight, height, umbilical acid-base balance and neurodevelopment were unaffected. Thus, the prognosis of using Buprenorphine during pregnancy is favourable. Medical professionals should be advised about the benefits of opioid maintenance treatment in pregnancy and educated about the potential results related to this treatment.

Keywords: Pregnancy; Buprenorphine; Opiate addiction; Neonatal risks

Abbreviations OMT: Opioid Maintenance Treatment; ORL-1: Opioid Receptor-Like; NAS: Neonatal Abstinence Syndrome

Background

Misusing opioid drugs during pregnancy has been associated with many risks among mothers and neonates. Opioid Maintenance Treatment (OMT) with either methadone or buprenorphine, has become the treatment of choice for pregnant women who are opioid-dependent to prevent complications associated with narcotic withdrawal, facilitate prenatal care, reduce drug-related criminal activity and help patients to avoid other risks associated with the drug culture [1-3].

Buprenorphine Substitution seems to be safe during pregnancy and non-teratogen [4,5]. A literature review supports our hypothesis that the use of opioid maintenance treatment at the time of conception and during pregnancy is not likely to have negative effects on pregnant women or newborns. The Neonatal Abstinence Syndrome (NAS) induced by buprenorphine is of much less intensity and lasts a much shorter duration when compared to methadone, which might be explained the partial agonist and antagonist activities of buprenorphine compared to pure agonist action of methadone or heroin [4-6]. In addition, Buprenorphine activates the Opioid Receptor-Like (ORL-1) receptor which counteracts the actions of morphine [6].

Some organizations are advocating that buprenorphine should be used as a potential first-line medication for pregnant opioid-dependent women who are new to treatment [6]. Factors to consider in making this choice include patient's preference and availability of comprehensive obstetrical and substance abuse care [6].

Buprenorphine treatment of maternal opioid use during pregnancy shows a lower risk of preterm birth, greater birth weight and larger head circumference when compared with methadone treatment and no greater harms [7]. Buprenorphine is recommended as the drug of choice for pregnant women starting OMT due to better outcomes in neonatal growth parameters. Frequent follow-up throughout the pregnancy is essential to ensure that the women in OMT abstain from misusing the prescribed drugs [8].

Case Presentation

The patient is a 30-year-old woman, who gave birth to four children while on Buprenorphine. The patient is under the care of Dr. Aqeel Khan. IRB and Ethics approval was obtained by Clinic Advanced Psychiatry and counselling, the patient's consent was obtained freely. The patient started using opioids when she was 18 years old. She became dependent on them 7 years before starting treatment with buprenorphine at the age of 24. Ever since, she has not used any other drugs, apart from buprenorphine. She met her current husband 8 years ago. He has no history of drug, alcohol or tobacco use and works full time.

The patient used Buprenorphine in all of her pregnancies. The patient's first child was born eleven years ago and she also delivered three other children in 2011, 2014 and 2016. In April 2007, she started Buprenorphine. A few months later she was pregnant with her first

daughter. She was taking Buprenorphine during pregnancy and there were no withdrawal symptoms. Dr. Khan tried to lower the dose from 24 to 16 when she was 4 months pregnant. Between the first pregnancy and the second one, the patient tried to taper Buprenorphine down. She tapered to a low dose, but she had to go back up for some reason.

In her second pregnancy, the patient reduced the dose of Buprenorphine over the last weeks of pregnancy. At delivery, she was on a daily dose of buprenorphine. The patient's second child was born in pregnancy week 40 with premature rupture of membrane. The child had a normal height and weight but increased head circumference. The neonate did not have NAS symptoms on the Finnegan scale and thus did not need pharmacological treatment for NAS. The patient and her newborn child were discharged from hospital after 8 days. The child has been breastfed/bottle fed for 24 months.

The patient's third child was born in the 39th week with premature rupture of membrane and had a normal height, weight and head circumference. The neonate did not have any NAS symptoms and they were both discharged from hospital 9 days after the delivery. The child was also breastfed for one year. The patient's fourth child was born in November 2016. She had a false labor, followed by premature rupture of membranes. This was the same pattern as her previous 3 pregnancies. The fourth child had a shoulder dystocia (8 lbs.), an increased head circumference and a normal height. There were no withdrawal symptoms and she was still breastfeeding him by the time of the interview for this case report. At the present time, the patient is still using Buprenorphine. She is working full time without using any substances. Her children are all healthy and growing well.

Discussion

Opioid-dependent pregnant women can start opioid maintenance therapy using Buprenorphine during pregnancy. Patient's consent and understanding of the tapering process is an important part of managing drug abuse. This case report highlights a successful story of a patient who has been using buprenorphine during her four pregnancies without any noticeable complications which support the safety of Buprenorphine during pregnancy [9-11].

Tapering before week 14 is recommended to avoid spontaneous abortion as it can be easily blamed to buprenorphine [12].

Sudden drug cessation can lead to maternal and fetal complications such as NAS so, it is important to develop clinical tests to monitor neonatal abstinence symptoms. Close medical follow-up is essential in the management of opioid-dependent women during pregnancy. The tapering should be stopped immediately if the pregnant develops any signs or symptoms of opioid withdrawal during the process and the pregnant woman should be informed that restarting buprenorphine after tapering is not a failure and it is a part of the process. Our patient was able to taper her buprenorphine due to her motivation, commitment to the management plan, support from her partner and her family and consistent medical follow up [13,14]. Counselling and psychotherapy are recommended for pregnant women who go through OMT. Physicians have the responsibility to educate pregnant patients about the possible side effects, risks and benefits of opioid maintenance therapy and tapering process. Larger studies are warranted to support the safety and efficacy of Buprenorphine during pregnancy with the evidence base as opposed to no OMT [15,16]. Currently the patient is still using buprenorphine and hoping to be weaned off of it soon.

Authors' contributions

Dr's Ali and Zaher shared equal responsibility of lead authorship for this case report under the tutelage of Dr. Aqeel Khan, M.D (primary researcher). Contributing authors were assigned vital contributory tasks by lead co-authors necessary to complete this work with everything from statistics, abstract formulation, journal identification, referencing, to formatting.

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