CASE REPORT

A woman's experience of tapering from buprenorphine during pregnancy

Gabrielle Katrine Welle-Strand,^{1,2} Odd Kvamme,³ Andreas Andreassen,⁴ Edle Ravndal¹

¹Norwegian Centre for Addiction Research (Serif), University of Oslo, Oslo, Norway

²Department of Psychiatry and Substance Use, Norwegian Directorate of Health, Oslo, Norway

³Leirvik legekantor, Leirvik, Norway

⁴Department of Pediatrics, Helse Fonna, Haugesund, Norway

Correspondence to

Dr Gabrielle Katrine Welle-Strand, gwe@helsedir.no

Accepted 6 December 2014

SUMMARY

Although opioid maintenance treatment (OMT) is the treatment of choice for pregnant opioid-dependent patients, some professionals argue that tapering the medication dose will reduce the severity of neonatal abstinence syndrome (NAS). This case description is based on the patient's detailed blog, and medical records from her general practitioner and the hospital. The patient is an employed, 32-year-old drug-abstinent woman in OMT. Her taper from 24 mg of buprenorphine started at 14 weeks' gestation and is slow, with withdrawal symptoms increasing gradually. In pregnancy week 31, she is off buprenorphine but she has severe withdrawal symptoms. She chose to go back on 4 mg of buprenorphine. The patient's son was born in pregnancy week 38+3, weighs 2950 g and does not require pharmacological treatment for NAS. The fetus most probably did experience fetal stress during the patient's tapering. It was the right decision by the patient to go back on buprenorphine.

BACKGROUND

To the best of our knowledge, no studies have focused on slow tapering of the methadone or buprenorphine dose for pregnant women stabilised under opioid maintenance treatment (OMT). Such tapering is described in the national treatment guidelines for opioid-dependent pregnant women, both in the USA and in Norway.^{1 2}

OMT, with either methadone or buprenorphine, has become the treatment of choice for opioid-dependent pregnant women.³ Typically, more than 50% of neonates having been exposed to methadone or buprenorphine in pregnancy will develop a neonatal abstinence syndrome (NAS) requiring pharmacological treatment with opioids.^{4 5}

In many countries, including Norway, professionals have tried to influence pregnant women to lower their OMT medication dose during pregnancy, arguing that this will reduce the incidence and severity of NAS for the neonate after birth.^{6 7} Many pregnant women in OMT also want to taper their dose of OMT medication, thinking this will reduce the chance of NAS for their neonate. The knowledge base for recommending tapering in pregnancy is sparse.

In Norway, there has been a long lasting political and professional debate about tapering the OMT medication for pregnant women.⁸⁻¹¹ The national treatment guidelines on OMT of pregnant women were issued by the Norwegian Directorate of Health in May 2011.¹ The main advice concerning

OMT medication dosing in pregnancy is in line with the World Health Organisation's recommendation: "Methadone or buprenorphine should be maintained during pregnancy". There is, however, a secondary recommendation in the Norwegian guideline: 'The methadone or buprenorphine dose may be tapered to some extent (possibly entirely) during pregnancy, providing the tapering takes place under safe conditions. The tapering should be carried out between the 14th and 32nd gestational week'. 'A medically safe tapering can be performed if: (1) The woman wants to taper (2) The woman does not use any licit (apart from the OMT medication) or illicit drugs (3) Other drugs of dependence should be tapered first (4) The woman does not experience troublesome withdrawal symptoms (5) The woman receives close follow-up as an out-patient or in an institution (6) The dose of the OMT medication can be increased whenever the woman so wishes, either during or after the pregnancy.'

The recommendation concerning tapering is based on sparse evidence and collective clinical experience. To date, no qualitative experiences with tapering are available. The following case study gives a detailed account of the experience of a healthy woman in OMT who tapered her buprenorphine medication dose during pregnancy.

CASE PRESENTATION

This case description is based primarily on the patient's detailed blog¹² during her pregnancy, but is also based on emails between authors GKWS and the patient, and medical records from the patient's general practitioner (GP; OJK) and from Fonna Hospital.

The patient is a 32-year-old woman, pregnant for the third time. She started using cannabis at the age of 13 years. The patient's first child was born 14 years ago, after a pregnancy without any use of medications. She stopped smoking cannabis when she got pregnant and stopped smoking cigarettes when she was 4 months pregnant. She did not smoke or use illegal or legal drugs later in the pregnancy. The patient's first child was born 3 weeks before term—with a length of 48 cm, weight at 3180 g (10th centile for birth weights according to the Bergen growth study)¹³ and head circumference of 34 cm (17.5th centile). The patient used opioids for the first time when she was 21 years old and very soon she was opioid dependent. She was opioid and benzodiazepine dependent for 4 years before entering OMT with buprenorphine at the age of 25 years.

CrossMark

To cite: Welle-Strand GK, Kvamme O, Andreassen A, et al. *BMJ Case Rep* 2014. Published online: [please include Day Month Year] doi:10.1136/bcr-2014-207207

Ever since, she has not been using any illegal or legal drugs, apart from buprenorphine. She has been working full time for the past 5 years. She met her present husband 4 years ago; he has no history of drug use and is also working full time.

The patient contacted GKWS, before getting pregnant in 2008, to ask if it was safe for her to become pregnant while being maintained on buprenorphine+naloxone (Suboxone). The patient was on 20 mg of buprenorphine+naloxone when she conceived, but was subsequently switched to buprenorphine monotherapy. She stopped smoking cigarettes when she realised she was pregnant and never started smoking again. In her second pregnancy, the patient reduced her buprenorphine dose to 16 mg by week 20, but was advised to increase her dose as she felt miserable. At delivery, the patient was on a daily dose of 24 mg of buprenorphine. She did not use any drugs and did not drink any alcohol during the pregnancy. The patient's second child was born in pregnancy week 38+3, with a length of 50 cm, birth weight at 3035 g (10th centile) and head circumference of 34 cm (17.5th centile). The neonate had only minor NAS symptoms on the Finnegan scale and did not need pharmacological treatment for NAS. The patient and her newborn child were discharged from hospital after 10 days. The child was breastfed for 14 months.

The patient contacted GKWS in pregnancy week 6 of her third pregnancy to get advice on how to taper her OMT medication during pregnancy. She was determined to try to get off buprenorphine before delivery. The patient said that the decision to try tapering her OMT medication dose was entirely her own. Neither the professionals around her, nor her family or friends had tried to influence her decision. She was afraid that this time she would have a baby suffering from NAS, even though her last child did not have NAS requiring pharmacotherapy. She was on a daily dose of 24 mg of buprenorphine. She received advice in accordance with the national treatment guideline¹ and was advised to start tapering in pregnancy week 14. The patient had close follow-up by her GP and Fonna hospital as well as from the OMT counsellor and the OMT doctor, when needed. The patient also corresponded with GKWS during her pregnancy, which was known and accepted by the

professionals around her. The patient suggested reducing her dose of buprenorphine by 0.2 mg/day, instead of reducing her dose more step wise. This strategy was thought to be sensible and was accepted by the professionals performing the follow-up. See table 1 for details.

The patient reports the first symptoms of withdrawal in pregnancy week 17, when she was on 19 mg of buprenorphine while experiencing sweating and loose stools. However, the symptoms subside after a few days. In pregnancy week 20 and with 15.4 mg of buprenorphine, she experienced withdrawal sneezing and also had some days where she found it mentally hard. Again her symptoms disappeared after a few days. This pattern continued during the next few weeks. Some days she found it mentally tough, often after one or two nights with little sleep, followed by some days where she experiences more physical withdrawal symptoms, before the situation improves and she feels better once again. She reports new physical symptoms like bad appetite, and feeling heavy and tired. The patient frequently writes in her blog that the withdrawal symptoms so far have been fewer and milder than she expected. In week 24+5, when on 8.8 mg of buprenorphine, the pattern seems to change and the patient reports having some really bad days mentally, she feels very tired and heavy, is sweating more and reports ant-like creeping sensation under her skin. However still, after some tough mental and physical days, the symptoms of withdrawal improve once again. A week later, the patient starts to divide her daily dose of buprenorphine into two: 4.8 mg in the morning and 2.6 mg in the afternoon. She experiences a marked improvement in her condition for some days. Even though the withdrawal symptoms seem to gradually increase over the next few weeks, the patient feels happy and optimistic most of the time that she will reach her goal and get off buprenorphine. The patient reports days where she cries a lot, and she finds it harder to cope with stressful situations than before. She reports dilated pupils, more contractions in her uterus and all the previously mentioned symptoms of withdrawal. Around week 29, when she is on 2.6 mg of buprenorphine, she reports a marked increase in mental and physical symptoms of withdrawal. She feels mentally worn out, sleeps badly, has no

Table 1 Buprenorphine dose (mg), body weight, check-ups with GP and at the hospital, fundal height and estimated fetus weight through the patients's third pregnancy

Pregnancy week	Buprenorphine dose (mg)	The patient's body weight (kg)	Check-up GP (number)	Check-up hospital (number)	The patient's fundal height (cm)	Estimated body weight fetus (g)*
8	24	61.0	1			
14	24					
16	21.6	60.9	3		19	
22	13.2	64.3	5		20.5	
24	10.4		6		23.0	
26	7.6		7	3	25.5	
29	3.4	67.0	8			
30	1.2					
31	0.4	64.2	9		27.0	
31	0					
32	4.0	64.2	10	4		1550
33	4.0	70.0	11		29.0	
35	4.0	69.5	12	5	32.0	
36	4.0	68.2	13	6	33.0	2300
38	4.0			7		2850

*Estimated by ultrasonic measure.
GP, general practitioner.

Figure 1 The patient's fundal height measure during pregnancy.

appetite and sweats a lot; but still some days are better than the others. In the same week, she reports in her blog that she wonders whether the fetus is in withdrawal: on three occasions she has registered the fetus sort of 'shivering' for half-a-minute or so inside her womb, just before she has taken her buprenorphine in the morning.

In week 31+2, she reaches her goal and is off buprenorphine, but she hardly sleeps, feels mentally worn out and has all the signs and symptoms of severe withdrawal. She takes some paracetamol to reduce pain and phenergan for a few days to get some sleep. Her heart rate at rest is 130. The patient's pregnancy check-ups now show that she is losing weight; from pregnancy week 29 to 31, the patient's body weight is reduced by 2.8 kg. In addition, the fundal height measure is not increasing as expected (figure 1). The patient is thinking a lot about drugs, but says she is far from using any. She has nasty nightmares. After 8 days without medication, she is sent to Fonna hospital for a medical check-up because the fundal height measure is not increasing as expected and the patient's body weight has reduced. The gynaecologist who performs the check-up says she is not worried about the well-being of the fetus, but says that the patient needs sleep. This doctor recommends her to stay off buprenorphine. The same day she sees her OMT doctor and OMT counsellor. They recommend her to go back on 4 mg of buprenorphine, which was the last medication dose she slept reasonably well on. The patient is confused, as she is getting opposing recommendations from the professionals taking care of her. After many hours of thinking, she decides to go back on 4 mg of buprenorphine. She reports regretting the decision the moment she puts the tablet under her tongue, but continues. After half an hour, her pulse slows down to normal rate and she breathes more easily, her body rests and she does not feel as heavy anymore. She feels relieved, but at the same time she has many thoughts about not managing to stay off buprenorphine.

For the rest of the pregnancy she is maintained on 4 mg of buprenorphine/day. She sleeps well, feels mentally well and reports no further abstinence symptoms. Towards the end of the pregnancy she has some pain in her pelvic region; but apart from this common pregnancy discomfort, she is fine. She goes for regular check-ups with her GP and has two more ultrasonic controls with the gynaecologist at Fonna Hospital.

Her son is born in pregnancy week 38+3; his length is 50 cm, the birth weight is 2950 g (5th centile) and the head

circumference is 34 cm (17.5th centile). The patient describes the birth as a fantastic experience. The baby is observed closely for withdrawal signs and is scored three times a day (modified Finnegan scale), but does not reach the threshold score for pharmaceutical treatment of NAS.¹⁴ His NAS-scores are gradually reduced over the following days and on day 10, the patient and her son are discharged from the hospital. The baby is fed on breast milk exclusively for the first 4 months of life, thereafter, he gets formulae supplementation.

OUTCOME AND FOLLOW-UP

The present situation: the patient finally tapered completely off buprenorphine 2.5 years after her son was born. She is still without any use of nicotine, legal or illegal drugs and works full time. Both her children who have been exposed to buprenorphine during pregnancy are developing like any children of similar age.

DISCUSSION

The patient had a very gradual tapering, going down by 0.2 mg of buprenorphine every day from week 14 of the pregnancy. For many weeks she was optimistic and surprised that the withdrawal symptoms were relatively weak. She repeats in her blog several times that she is admiring her body's ability to recover from the withdrawal symptoms. This seems to be the case until she is on approximately 3–4 mg of buprenorphine, when her mind and body seem worn out from the tapering. Even though her taper scheme is gradual, it is tough to taper from 24 mg of buprenorphine to zero in mid-pregnancy (14th to 32nd pregnancy week). The fluid volume of distribution for buprenorphine increases as the pregnancy progresses.^{15 16} This is particularly the case towards the end of the pregnancy, where the fetus grows the most and also the pregnant woman's fluid volume is expanding substantially. The usual discomforts of pregnancy also increase in the last trimester, making the tapering even more challenging.

The patient reports being confused and frustrated about getting opposing advice from different professionals—when she on the same day has consultations with both the gynaecologist and her OMT doctor and OMT counsellor. It leaves the pregnant woman in confusion: whose advice should she listen to? The Norwegian National treatment guidelines¹ recommend that professionals should give evidence-based, consistent advice. In

matters concerning OMT and pregnancy, professionals may voice their personal opinion rather than give advice based on evidence and the individual woman's condition.⁸

How did the patient manage to taper her buprenorphine dose to such an extent? As we see it, she was an ideal candidate for tapering: she was doing very well in OMT; she had not taken any legal or illegal drugs, did not take any other medication than buprenorphine and did not smoke cigarettes. She had chosen to taper herself, she was well motivated and had a major influence on the plan and speed of tapering. She had good support from her husband and her family. She also had close follow-up from the professionals around her and easy access to professional advice when she needed it.

Why did the patient not stay off buprenorphine? She was experiencing severe withdrawal and there were also clear indications that the fetus was not in a favourable position (the patient's weight loss, the reduced growth in fundal height and the 'shivering' of the fetus). The patient should, therefore, have been supported in the difficult decision to restart buprenorphine.

Many pregnant women in OMT want to taper their OMT medication. On the other hand, tapering of the OMT medication is difficult even without being pregnant;^{17 18} only approximately 5% of non-pregnant patients succeed in tapering completely and to stay off the OMT medication without relapsing to illegal drugs.

The pregnancy period is a relatively short period for tapering. There is no evidence from research that the buprenorphine dose at delivery is correlated to the severity of withdrawal for the neonate. The dose of buprenorphine should be sufficient all through pregnancy to ensure the well-being for both the woman and the growing fetus. The patient's dose of buprenorphine was relatively high, 24 mg when she started to taper. She writes in her blog that she should have started before week 14, thus making it possible to reduce the speed of tapering in late pregnancy. The reason why we do not recommend tapering before 14 weeks is the fear of early spontaneous abortions. However, there are only a few rather old reports of early spontaneous abortion following tapering from methadone.¹⁹ We do know that early miscarriages happen quite often for various reasons and if spontaneous abortion happens while a woman tapers, it might be easy to blame the tapering for the miscarriage.

How does the woman's withdrawal symptoms and the stress linked to the tapering affect the fetus? The patient had severe withdrawal symptoms, at least during the last month of her taper, but we do not have any standard method for assessing the fetus' withdrawal symptoms. An intrauterine abstinence syndrome (IAS) has been suggested,²⁰ but is not documented for humans. Recent pregnancy research also focuses on how a pregnant woman's stress affects the fetus. Prenatal stress has been shown to be associated with spontaneous abortion, preterm birth and growth retardation of the fetus,²¹ as well as with long-term behavioural consequences, such as disorders in attention and learning difficulties.²² A pregnant woman in withdrawal surely is under a lot of stress. Is it better for the fetus to experience the withdrawal in utero or is it better to go through the withdrawal after delivery? The patient discusses this in her blog, pointing out that the fetus is well sheltered within the womb from outside stressors. On the other hand, after delivery, the neonate can be monitored closely for symptoms of withdrawal and treated according to the symptoms.

We conclude that it was right for the patient to go back on 4 mg of buprenorphine because she experienced severe withdrawal and there were several signs indicating that the fetus was not in an optimal condition and was showing signs of fetal stress.

Learning points

- ▶ Some healthy women manage to taper their opioid maintenance treatment (OMT) medication dose substantially during pregnancy without relapsing to opioid use. Tapering the OMT medication in pregnancy should always be based on the woman's decision and should be gradual.
- ▶ A substantial taper will often lead to severe abstinence symptoms for the woman and probably, also to fetal stress. We need to develop clinical methods to monitor the fetus' withdrawal signs and well-being.
- ▶ Close medical follow-up of the pregnant woman during tapering is essential.
- ▶ The tapering should be stopped/reversed if the woman experiences severe withdrawal symptoms or if the signs/symptoms indicate that the fetus is stressed. A woman, who tries to taper during pregnancy, needs intense counselling and psychotherapy. Especially she needs reassurance that restarting OMT during pregnancy following taper is not a failure or an inability to succeed.
- ▶ Medical professionals dealing with pregnant women in OMT should be educated about the benefits of OMT in pregnancy and potential problems if a woman taper off her OMT medication dose.

Acknowledgements First of all, the author would like to thank the patient for sharing her story and hence making it available for publication. Second, the author is grateful to the Norwegian Directorate of Health for giving her the opportunity to do research and to her colleagues at the Norwegian Centre for Addiction Research for inspiring her throughout the course of the study. Third, thanks to Professor Hendrée Jones at University of North Carolina at Chapel Hill for invaluable help with the language.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Welle-Strand GK, Bakstad B. *National clinical guideline for opioid maintenance treatment in pregnancy and the follow-up of the children and families until school-age*. Norwegian Directorate of Health, 2011.
- 2 Medication-assisted treatment for opioid addiction during pregnancy. In: TIP 43. 11/2008:217-218. Substance Abuse and Mental Health Services Administration.
- 3 Jones HE. Treating opioid use disorders during pregnancy: historical, current, and future directions. *Subst Abuse* 2013;34:89-91.
- 4 Jones HE, Kaltenbach K, Heil SH, et al. Neonatal abstinence syndrome after methadone or buprenorphine exposure. *N Engl J Med* 2010;363:2320-31.
- 5 Welle-Strand GK, Skurtveit S, Jones HE, et al. Neonatal outcomes following in utero exposure to methadone or buprenorphine: a National Cohort Study of opioid-agonist treatment of Pregnant Women in Norway from 1996 to 2009. *Drug Alcohol Depend* 2013;127:200-6.
- 6 Dryden C, Young D, Hepburn M, et al. Maternal methadone use in pregnancy: factors associated with the development of neonatal abstinence syndrome and implications for healthcare resources. *BJOG* 2009;116:665-71.
- 7 Dashe JS, Jackson GL, Olscher DA, et al. Opioid detoxification in pregnancy. *Obstet Gynecol* 1998;92:854-8.
- 8 Tømmervik K, Walhovd KB, TO A, et al. Offer tapering of the OMT-medication instead of maintenance treatment in pregnancy (Norwegian only: Tilby nedtrapping i stedet). In: Bergens Tidende. 2011.
- 9 The methadone-babies: Born intoxicated, paid by the State (Norwegian only: Metadonbarna: Født på rus betalt av staten).
- 10 Dommerud T. Bringing the methadone-babies to the Norwegian parliament (Norwegian only: Metadonbarna til Stortinget). In: Aftenposten. 2011.
- 11 Vindegg G. Methadone maintenance to pregnant women; are the government giving the right advice? (Norwegian only: Metadon til gravide: Veiledning eller villledning). *Tidsskrift for Norsk Psykologforening* 2012;49:896-7.

- 12 M: Blog: Pregnant and on buprenorphine (Norwegian only: Gravid i LAR). <http://www.gravidilar.blogg.no>
- 13 Juliussen PB, Vinsjansen S, Nilsen B, *et al.* Måling av vekst og vekt: En oversikt over anbefalte teknikker. *Pediatrisk Endokrinologi* 2005;19:23–9.
- 14 Jansson LM, Velez M, Harrow C. The opioid-exposed newborn: assessment and pharmacologic management. *J Opioid Manag* 2009;5:47–55.
- 15 Kreek MJ. Methadone disposition during the perinatal period in humans. *Pharmacol Biochem Behav* 1979;11(Suppl):7–13.
- 16 Shiu JR, Ensom MH. Dosing and monitoring of methadone in pregnancy: literature review. *Can J Hosp Pharm* 2012;65:380–6.
- 17 Kornor H, Waal H. From opioid maintenance to abstinence: a literature review. *Drug Alcohol Rev* 2005;24:267–74.
- 18 Nosyk B, Sun H, Evans E, *et al.* Defining dosing pattern characteristics of successful tapers following methadone maintenance treatment: results from a population-based retrospective cohort study. *Addiction* 2012;107:1621–9.
- 19 Luty J, Nikolaou V, Bearn J. Is opiate detoxification unsafe in pregnancy? [see comment]. *J Subst Abuse Treat* 2003;24:363–7.
- 20 McCarthy JJ. Intrauterine abstinence syndrome (IAS) during buprenorphine inductions and methadone tapers: can we assure the safety of the fetus? *J Matern Fetal Neonatal Med* 2012;25:109–12.
- 21 Mulder EJ, Robles de Medina PG, Huizink AC, *et al.* Prenatal maternal stress: effects on pregnancy and the (unborn) child. *Early HumDev* 2002;70:3–14.
- 22 Weinstock M. The long-term behavioural consequences of prenatal stress. *Neurosci Biobehav Rev* 2008;32:1073–86.

Copyright 2014 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow