



Medicines Evidence Commentary

commentary on important new evidence from Medicines Awareness Weekly

Published: November 2012

Quitting smoking in pregnancy: new evidence on nicotine replacement therapy

Document as included in MAW

A [meta-analysis](#) has found mixed evidence on the effectiveness of nicotine replacement therapy (NRT) for smoking cessation in pregnancy. A further large [randomised controlled trial](#) found that adding NRT patches to behavioural support did not increase the rate of abstinence from smoking. These trials are consistent with [NICE public health guidance](#) in this area which does recommend a limited role for NRT in pregnant women.

Overview and current advice

[NICE public health guidance 26, Quitting smoking in pregnancy and following childbirth](#)¹ was issued to help women who smoke and who are planning a pregnancy, are already pregnant, or have an infant aged under 12 months. All pregnant women who smoke, or have stopped smoking within the last 2 weeks, or who have a carbon monoxide reading of 7 ppm or above should be offered referral to NHS Stop Smoking Services¹.

Whilst [NICE public health guidance 10, Smoking cessation services](#)² recommends either nicotine replacement therapy (NRT), bupropion or varenicline as one of several options for certain people within the general population who are planning to stop smoking, neither bupropion nor varenicline should be offered to pregnant or breast-feeding women². There is mixed evidence on the effectiveness of NRT in helping women to stop smoking during pregnancy, and data have been insufficient to form a judgement about whether or not NRT has any impact on the likelihood that a child will need special care or will be stillborn¹. Therefore, NICE guidance is that NRT should only be used by pregnant women who smoke if smoking cessation without NRT has failed, and only then if they express a clear wish to receive NRT following a discussion of the risks and benefits¹.

New evidence

Two studies have recently examined the efficacy and safety of drug therapies for smoking cessation in pregnancy. These were a [meta-analysis](#)³ of 7 trials in 1,386 pregnant women who smoked; and a further large [randomised controlled trial](#) (RCT)⁴ that compared NRT patches with placebo, used in

addition to behavioural support, in 1,050 pregnant women who smoked at least 5 cigarettes (median 14) each day.

Follow up of studies in the meta-analysis ranged from 12 weeks to about 26 weeks. All of the 5 RCTs (n=695) included were of NRT (patch, lozenge or gum) compared with control. Meta-analysis of these found that, compared with control, NRT had a [statistically significant](#) effect on smoking cessation ([relative risk](#) [RR] 1.48; 95% [confidence interval](#) [CI] 1.04 to 2.09). However, none of these 5 RCTs individually showed a statistically significant benefit of NRT. Importantly, a separate meta-analysis of the 3 placebo-controlled RCTs (n=474) of NRT also found no benefit (RR 1.25 95% CI 0.86 to 1.82)³.

In the new [RCT](#), the women enrolled were at a mean gestational age of about 16 weeks. All women received behavioural support to stop smoking at enrolment. They were also asked to agree a quit date when NRT patch (15mg per 16 hours) or placebo would be started. Behavioural support continued by telephone on the quit date, 3 days later and at 4 weeks. The primary outcome was self-reported abstinence from smoking (validated at delivery by exhaled carbon monoxide concentration and estimated salivary cotinine concentration) between the quit date and childbirth. No statistically significant difference between NRT patches and placebo were seen on this primary outcome (9.4% versus 7.6%; [odds ratio](#) [OR] 1.26, 95% CI 0.82 to 1.96)⁴. However, this study is limited by the fact that adherence to the regimen was very low; only 7.2% of women in the NRT group and 2.8% in the placebo group reported using trial medications for more than one month.

Several serious adverse effects were reported in the studies included in the meta-analysis, such as preterm birth and neonatal intensive care admissions, but there was no evidence linking them directly to the drug therapies used³. Data from singleton births in the RCT found similar rates of preterm birth, low birth weight and congenital abnormalities between the NRT and placebo groups. However, more deliveries by caesarean section were seen in the NRT group (20.7% versus 15.3%; OR 1.45, 95% CI 1.05 to 2.01)⁴.

The authors of the meta-analysis concluded that there may be evidence to support the use of NRT for smoking cessation amongst pregnant women in terms of its efficacy and safety³. However, this is based on limited data as the studies included had low numbers of women, short-term follow-up and often did not report comprehensive information on the effects on the foetus/newborn.

The [evidence review](#)⁵ that informed [NICE public health guidance 26](#)¹ individually reviewed the same studies that were included in this new meta-analysis³. It found that, taken together, findings of all the RCTs suggested that NRT is effective for reducing smoking in pregnancy. However, all the evidence for NRT being effective came exclusively from RCTs which were at highest risk of bias. As was found with this new meta-analysis, the most robustly designed placebo-controlled RCTs did not find a benefit for using NRT for smoking cessation in pregnancy. This also concurs with the additional RCT reviewed here which also found no evidence of benefit with NRT in addition to behavioural support⁴.

See the [NHS Evidence topic page on smoking cessation](#) for a general overview of this topic. [The NICE Pathway: smoking prevention and cessation overview](#) brings together all related NICE guidance and associated products on this subject in a set of interactive topic-based diagrams.

Commentary

Commentary provided by Ron Gray FFPH, Senior Clinical Research Fellow, National Perinatal Epidemiology Unit, University of Oxford:

Smoking during pregnancy is a major public health problem in the UK; potentially preventable yet seemingly intractable in certain population groups such as socially disadvantaged teenagers. Behavioural interventions can increase smoking cessation rates during pregnancy and reduce low birth weight and preterm birth⁶. There is evidence in pregnant women who smoke to support the use of cognitive behaviour therapy, motivational interviewing and structured self-help, as well as support from NHS stop smoking services¹. However, the evidence for effectiveness of nicotine replacement therapy (NRT) in pregnancy has been equivocal with better quality studies showing little or no effect. The large

placebo-controlled trial conducted by Coleman et al⁴. has confirmed that NRT seems to be ineffective in pregnant smokers and, therefore, should not be routinely offered. Despite the lack of effectiveness it can be argued (given the very low adherence rates in the trial) that the effectiveness in pregnant women who actually adhere to NRT treatment is unclear⁷ and, therefore, there may be some justification in trying NRT in women where behavioural approaches have failed, who request NRT and where adherence can be closely monitored.

References

1. NICE (2010). [Quitting smoking in pregnancy and following childbirth](#). Public Health Guidance 26
2. NICE (2008). [Smoking cessation services](#). Public Health Guidance 10
3. Myung S-K, Ju W, Jung H-S, et al (2012). [Efficacy and safety of pharmacotherapy for smoking cessation among pregnancy smokers: a meta-analysis](#). BJOG 119:1029–39
4. Coleman T, Cooper S, Thornton JG, et al (2012). [A randomized trial of nicotine-replacement therapy patches in pregnancy](#). N Engl J Med 366:808–18
5. Bauld L and Coleman T (2010). [The effectiveness of smoking cessation interventions during pregnancy: a briefing paper](#)
6. Lumley J, Chamberlain C, Dowswell T, et al (2009). [Interventions for promoting smoking cessation during pregnancy](#). Cochrane Database of Systematic Reviews, Issue 3. Art. No.: CD001055. DOI: 10.1002/14651858.CD001055.pub3.
7. Oncken C (2012). [Nicotine replacement for smoking cessation during pregnancy](#). N Engl J Med 366:846–7

About this Medicines Evidence Commentary

Medicines Evidence Commentaries form part of [NICE's Medicines Awareness Service](#) and help contextualise important new evidence, highlighting areas that could signal a change in clinical practice. They do not constitute formal NICE guidance. The opinions of contributors do not necessarily reflect the views of NICE.

[Visit Evidence Search](#)

Copyright © 2013 National Institute for Health and Care Excellence. All Rights Reserved.