Use of snus during pregnancy is not without risk

The use of snus cannot be recommended as an alternative to smoking for pregnant women who have difficulty giving up cigarettes.

Smoking during pregnancy increases the risk of a number of pregnancy complications. The use of snus has increased among young Norwegian women, whereas the number of smokers is declining. Can snus be recommended to pregnant women as an alternative to smoking?

Snus is harmful, it maintains and intensifies addiction, and has no scientifically documented effect as a method for breaking smoking habits. A Swedish review article published in the *Läkartidningen* in 2011 (1) shows that snus use during pregnancy is more harmful than has been assumed. We have therefore reviewed all the three main studies referred to in the article, which are all based on data from the Swedish medical birth registry.

The first Swedish follow-up study was published in 2003, and included more than 23 000 women who either used snus, smoked, or did not use any forms of tobacco (2). The study showed that snus use increased the risk of premature birth and preeclampsia. Premature delivery was nearly twice as common among snus users as among the non-users of tobacco. In 2010, two studies were published by the same Swedish research group (3, 4), which confirmed the finding of an increased risk of premature birth. In addition, the studies showed that snus use is associated with an increased risk of stillbirth. Furthermore, it was revealed that the babies of snus users weighed on average 39 grams less than babies delivered by women who did not use tobacco. A recent study from 2011 showed that snus use increased the risk of apnoea in newborn children (5).

Assessment of the research results

It would be difficult to find any similarly well-founded studies that have an equal degree of relevance for the situation in Norway. The findings are adjusted for the most likely confounding variables, such as age, body-mass index, number of previous births, level of education, hypertension and diabetes. Certain additional factors, such as alcohol consumption, use of other drugs and conditions in the home, are absent from the studies. The fact that the pregnant women were asked about their use of tobacco at an early stage of their pregnancy means that those who started or quit smoking at a later time were not registered, and this can be assumed to have reduced the differences between the snus users on the one hand and the smokers and the non-users on the other.

On the other hand: If we have only one opportunity to inquire about snus use, it is methodologically best to do so at an early stage of the pregnancy. It would have been even better to analyse only those whom we are certain have used snus during their entire pregnancy. Most likely, the registered harmful effects would then have been higher than the studies indicate. Presumably, snus use is similar to smoking in this respect: Those who do not quit when the pregnancy is recognised will fail to do so altogether. Assistance for smoking cessation at the first ultrasound examination will be too late.

«A particular responsibility rests on those who recommend the use of a product that may have harmful effects»

We regard the Swedish studies to be of sufficient methodological quality to provide a basis for warning that snus use during pregnancy results in a heightened risk of stillbirth and premature birth, and that it will have a negative effect on birth weight.

Snus use during pregnancy is discouraged

All women should receive the information that snus use during pregnancy entails a risk similar to the risk exposure from smoking. We believe that it is indefensible to recommend the use of snus as an alternative to smoking for pregnant women.

There are only very few studies available on the use of nicotine substitutes during pregnancy (6–8). Thus, we have little knowledge about the effects of and safety considerations for the use of such drugs during this period. We will nevertheless claim that nicotine replacements are preferable to snus use and smoking for those who are unable to break their nicotine dependency. With a normal use of nicotine substitutes, the nicotine dose ingested by the foetus can be assumed to be lower than if the mother uses snus. Furthermore, snus and tobacco smoke contain several other toxic and harmful substances. If nicotine dependency is the problem, the most transparent solution will be counselling accompanied by nicotine substitutes, which do not contain the carcinogens and other toxic substances found in tobacco. However, the women should be counselled about possible harmful short- and long-term effects, and advised that the effects of the use of nicotine substitutes during pregnancy are little known.

A particular responsibility rests on those who recommend the use of a product that may have harmful effects. In pregnancy care, strong emphasis should be placed on motivational treatment and close follow-up to help patients break their cigarette and snus habits – and nicotine substitutes must be used only as a last resort. Most pregnant women will be motivated to avoid the use of tobacco once they receive systematic information on the possible consequences. Midwives and GPs have an important role to play in this regard.

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References

1. Wikström AK, Stephansson O, Kieler H et al. Snus under graviditet är inget riskfritt alternativ till rökning. Läkartidningen 2011; 108: 1430–3.
2. England LJ, Levine RJ, Mills JL et al. Adverse pregnancy outcomes in snuff users. Am J Obstet Gynecol 2003; 189: 939–43.
3. Wikström AK, Cnattingius S, Galanti MR et al. Effect of Swedish snuff (snus) on preterm birth. BJOG 2010; 117: 1005–10.
4. Wikström AK, Cnattingius S, Stephansson O. Maternal use of Swedish snuff (snus) and risk of stillbirth. Epidemiology 2010; 21: 772–8.
5. Gunnerbeck A, Wikström AK, Bonamy AKE et al. Relationship of maternal snuff use and cigarette smoking with neonatal apnea. Pediatrics 2011; 128: 503–9.
6. Clark SM, Nakad R. Pharmacotherapeutic management of nicotine dependence in pregnancy. Obstet Gynecol Clin North Am 2011; 38: 297–311.
7. Forinash AB, Pitlick JM, Clark K et al. Nicotine replacement therapy effect on pregnancy outcomes. Ann Pharmacother 2010; 44: 1817–21.
8. Coleman T, Chamberlain C, Cooper S et al. Efficacy and safety of nicotine replacement therapy for smoking cessation in pregnancy: systematic review and meta-analysis. Addiction 2011; 106: 52–61.

Received 20 February 2012, approved 8 March 2012. Medical editor: Petter Gjersvik.