The use of snus by young pregnant women appears to be on the increase, but smoking still predominates. Does the increased use of snus give grounds for concern?

Should pregnant women refrain entirely from using nicotine?

In my dealings with colleagues of the same age, I have reflected over what professional advances have made the strongest impression on me over the years. As a general practitioner and community medicine researcher, I would maintain that the 2004 amendment to Act No. 14 of 9 March 1973 relating to Prevention of the Harmful Effects of Tobacco (the Smoking Act) (1) has been the most significant measure for promoting public health. I hope this is reflected in my review of the biography of Sir Richard Doll (1912–2005) (2). In it I pointed out the sin of omission committed by the Royal Swedish Academy of Science in persistently passing over the most pre-eminent epidemiologist of the twentieth century when awarding the Nobel Prize. Doll's central research was associated with a long-term prospective study of the smoking habits of English medical practitioners (3). It revealed that cigarettes had the greatest impact on health, but that neither cigars nor pipe tobacco were blameless. The health risk was attributable to the use of tobacco; and only the degree and extent of exposure to nicotine via the respiratory tract differed.

The latter may have contributed to the results of the study by Rygh et al. in this edition of the Journal of the Norwegian Medical Association (4). They have analysed the use of snus and smoking tobacco in women who gave birth at Sørlandet Hospital in the period 2012–2014 – a total of over 10 000 women. A markedly larger proportion smoked than used snus. The proportion of smokers was also higher than in Norway as a whole. It remained stable throughout the period, and the link with other negative pregnancy factors, such as socioeconomic factors and lifestyle characteristics, was as expected. Nonetheless, there was a marked decline in the use of tobacco leading up to the birth. Less than 5 % of the women used snus, but consumption of snus increased markedly in the course of the period. More young women used snus, and the socioeconomic gradient was by no means as clear as among the smokers. Contrary to the authors' hypothesis, the percentage that stopped taking snus towards the end of their pregnancy was significantly larger than the percentage that stopped smoking. The birth weight of babies whose mothers had smoked in the third trimester was significantly lower, but the use of snus did not have a similar effect. The Apgar score was unaffected by either smoking or the use of snus (4).

As a GP in a newly established suburb in Trondheim in the mid-1970s, I had many pregnant women in for check-ups. My interest increased when a standardised pregnancy journal (called a Gravidogram) was introduced in about 1980 for the whole of Norway. Information about the pregnant woman's smoking habits occupied an important place in it. At that time, the prevalence of those who smoked during pregnancy was around or over 30 %, depending on age and parity, among other factors. Fortunately, the situation has changed – with a decline to around 10 % in the period up to the amendment of the Smoking Act (5). Since then it has declined even further. In the same way as for road traffic deaths, however, only a zero vision is acceptable.

The man behind the hypothesis «the fetal origin of adult disease», David Barker, died in 2013. When speaking of Barker, the Danish epidemiologist Jørn Olsen discusses their shared view of «a smoking epidemic among Western pregnant women in the period 1960–2000» (6). Olsen stresses that the effect on the child is by no means over when it leaves the intrauterine smoking room. Since the mid-1980s, I have been involved in a prospective study of pregnant women with still ongoing follow-up of their children (7). The original aim was to study factors that inhibit fetal growth and lead to the child weighing less than expected at birth (small for gestational age, SGA), and secondarily the effect of these factors in the short and long term. One principal finding is that no single factor can compare with the negative effect of smoking on the birth outcome, no matter what other risk factors there might be (7). One example of the fact that the effect of the mother's smoking habits does not stop at the child's birth is that these children are more often overweight than others (8). The question is whether this reflects the mothers' different eating habits (7, 9) or whether it is independent of both this parameter and the birth weight. In line with prevailing hypotheses, our thoughts tend to go in the direction of epigenetic impact on fetal life (10). This may mean that smoking, for example, affects DNA methylation and alters the child's gene expression.

How does this fit with the fact that Rygh et al. found that smoking – but not «snusing» – led to lower birth weights for babies (4)? Their findings are consistent with the results of two earlier studies in which snus was not found to have as pronounced an effect as smoking. On the other hand, a far larger population-based Swedish study of recent date showed an increased incidence of children who were small at birth (4). Despite their findings, Rygh et al. therefore express concern about the effect of snus, partly because of the argument that nicotine absorbed from snus is eliminated more slowly from the bloodstream than nicotine that is inhaled. They may also have missed an effect of this nature for two reasons: first and foremost, the number of women who used snus or tobacco decreased towards the end of the pregnancy; but so did the percentage of women who answered the question.

Is «snusing» a potential public health problem? Applying the precautionary principle, it cannot possibly be overly cautious to categorise snus as an environmental toxin in line with other nicotine-containing products, and to act accordingly.

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