

MOTHERISK UPDATE

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Nicotine replacement therapy during pregnancy

abstract

QUESTION Several years ago you argued in favour of trying nicotine replacement therapy during pregnancy. The Ontario Medical Association recommended the same. Are there any studies now to show that the patch works?

ANSWER A large randomized, blinded study from Denmark has recently shown that the rate of quitting smoking during pregnancy using the nicotine patch is very low and not different from the rate among those given placebo. Preliminary data suggest that women who cannot quit smoking after the first trimester metabolize nicotine rapidly and that this could be a mechanism for their failure to quit.

résumé

QUESTION Il y a quelques années, vous préconisiez le recours à une thérapie de remplacement de la nicotine durant la grossesse. L'Ontario Medical Association recommandait la même chose. Existe-t-il maintenant des études démontrant l'efficacité du timbre?

RÉPONSE Une étude aléatoire à double insu de grande envergure, effectuée au Danemark, a récemment fait valoir que le taux de cessation du tabagisme durant la grossesse à l'aide du timbre est très faible et qu'il ne diffère pas du taux enregistré chez les personnes utilisant le placebo. Les données préliminaires laissent entendre que les femmes qui ne réussissent pas à arrêter de fumer après le premier trimestre métabolisent la nicotine rapidement et ceci pourrait expliquer leur échec.

An estimated 25% to 30% of women smoke cigarettes at the beginning of pregnancy.¹ While some of them succeed in quitting smoking, many are unable to do so. While many psychosocial factors affect smoking patterns, it is now widely recognized that the inability to stop smoking cigarettes is due to dependence on nicotine. Studies of nicotine replacement therapy (NRT) show that nicotine patches, gum, or intranasal preparations are superior to placebo in helping people quit.²

Concerns about using NRT during pregnancy stem from the observed teratogenicity of nicotine itself in animals.³ Motherisk has shown that physicians can monitor nicotine serum levels in pregnant women using the patch and thus ensure

their concentrations do not exceed levels encountered during smoking.⁴

A recent study by a Danish group reported on the first randomized placebo-controlled study of NRT in pregnant women: 124 women were randomized to receive the nicotine patch and 126 to receive placebo. All participating women could not quit smoking during the first trimester of pregnancy. They smoked 10 or more cigarettes daily and were less than 22 weeks pregnant. Both groups

received counseling during the study.⁵ Compliance with the assigned treatment was low in both groups: 83% of the nicotine group and 92% of the placebo group did not use all their patches. Three months postpartum only 20% of the women in both groups were not smoking. Why are results of NRT so disappointing among pregnant women? Why are they not achieving better smoking cessation rates than with placebo?

During the first trimester of pregnancy, many women quit smoking. Hence, those who cannot quit and who opt to try NRT are a highly selected group. In Motherisk's experience, women who ask to receive NRT started smoking at a mean age of 12 years (some were as young as 9), smoked an average of 24 cigarettes a day,

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Motherisk questions are prepared by the **Motherisk Team** at the Hospital for Sick Children in Toronto. **Dr Koren** is Director of the Motherisk Team and a Senior Scientist in the Canadian Institutes of Health Research.

did not reduce cigarette consumption during pregnancy, and in most cases, lit their first cigarette within 5 minutes of waking up.⁶

Most of these women's partners were also smoking, and they had made many attempts to quit the habit. It is interesting that their serum levels of nicotine were lower than expected while their concentrations of the oxidative metabolite, cotinine, were higher than expected. This could mean that these women tend to be rapid metabolizers of nicotine, which would engender a greater need to consume more cigarettes, which in turn would prevent them from stopping smoking even with the motivation created by pregnancy.⁶

Should we abandon using NRT during pregnancy? Probably not. Perhaps these women need more intense therapy than the therapy used in the Danish study. In a much smaller study than the Danish one, the Motherisk team had three successes among 18 women who received NRT compared with none among the placebo group.⁷ It is possible that, because they are rapid metabolizers of nicotine, pregnant women need higher doses of nicotine in the patch than those given to non-pregnant women. Also, the counseling in our study seemed to be more intensive than that described in the Danish trial.

As with any therapeutic trial, the Danish study will have to be repeated

to ensure generalizability of results. The set might not be over, but it appears that placebo has won the first game. ❖

References

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