ABSTRACT

Background: Recent data suggest that although smoking during pregnancy has declined in North America, this has more to do with falling rates of smoking initiation among women of childbearing age than with increased rates of pregnancy-related smoking cessation. One possible explanation is poor exposure to effective stop-smoking strategies. Better information about women who smoke during pregnancy may help target these interventions more effectively.

Methods: The study was a cross-sectional, self-administered survey of a consecutive sample of 916 (40.4% of eligible) women who delivered healthy babies in 1997-98 at a tertiary teaching hospital in Hamilton, Ontario. Our main focus was on health behaviours (smoking, drinking, eating, and exercise habits) before and during pregnancy; but we also included questions about the presence of (other) children and (other) smokers in the household, perceived health status, the subject’s age and level of education, and whether or not the present pregnancy was planned. Factors associated with pregnancy-related smoking cessation were identified using multiple logistic regression.

Results: Respondents were better educated and healthier, but smoked at rates similar to women of childbearing age in Hamilton at the time of the survey. Two thirds of prior smokers or 20% of respondents overall continued to smoke during pregnancy. After adjustment for other factors, three factors were associated with ongoing smoking during pregnancy: having other smokers in the household; having other children in the household; and not having post-secondary education.

Conclusions: Many pregnant smokers are not being reached by current stop-smoking strategies. New ways to help these women and their partners are needed.
questions about subjects’ smoking, drinking, eating, and exercise habits before and during the pregnancy; perceived health status; and the presence of (other) smokers in the household. Section three asked about subjects’ age and level of education, (other) children, and whether or not the present pregnancy was planned.

Multiple logistic regression was used to identify independent risk factors for ongoing smoking during pregnancy. Factors that achieved a significance level of p<0.1 in bivariate analyses were entered into the model, and those significant at p<0.05 were retained. Data were managed and analyzed using SPSS PC (Chicago, Illinois) version 10.0.

The study protocol was approved by the hospital’s Research Ethics Board.

**RESULTS**

Of the 3,024 women who delivered babies during the study, 2,268 (75.0%) met the inclusion criteria and were approached during the study, 2,268 (75.0%) met the inclusion criteria and were approached during the study, 2,268 (75.0%) met the inclusion criteria and were approached during the study, 2,268 (75.0%) met the inclusion criteria and were approached during the study, 2,268 (75.0%) met the inclusion criteria and were approached during the study.

Women who smoked during pregnancy (20.0% of respondents, 62.5% of prior smokers) differed from those who stopped smoking (37.5% of prior smokers) in several respects. Ongoing smokers were: relatively less likely to have post-secondary education (54/175 (30.9%) vs. 55/103 (53.4% of quitters), p<0.001); more likely to have others in the household who smoke (169/175 (96.6%) vs. 56/103 (54.4% of quitters), p<0.001); more likely to have other children in the household (100/175 (57.1%) vs. 39/103 (37.9% of quitters), p=0.002); less likely to have a planned pregnancy (86/175 (49.1%) vs. 63/103 (61.2% of quitters), p=0.052); and less likely to take daily multi-vitamin supplement in the month before conception (50/175 (28.6%) vs. 40/103 (38.8% of quitters), p=0.084).

On multiple logistic regression, three factors remained associated with smoking during pregnancy: having other smokers in the household (estimated odds ratio (exp(B)): 21.35 (95% confidence interval (CI): 8.49, 53.64), p<0.001); having other children in the household (exp(B): 2.02 (95% CI: 1.10, 3.71), p=0.023); and not having post-secondary education (exp(B): 0.51 (95% CI: 0.28, 0.93), p=0.028).

**DISCUSSION**

In this sample of relatively well-educated, English-speaking women, most of whom had planned pregnancies, about two thirds of prior smokers or 20% of women overall continued to smoke during pregnancy; a
prevalence similar to that found in a recent Canada-wide survey. Given the social desirability of non-smoking status, which is even greater during pregnancy, the true prevalence may be higher. Like studies done outside Canada, we also found that ongoing smokers were less well educated and were more likely to have other children and other smokers in the household. While better information is needed about Canadian physicians’ prenatal counselling practices, we hope this study helps encourage providers and policy-makers to revisit and address barriers to routine stop-smoking intervention in prenatal care.

A brief counselling session of 5-15 minutes, when coupled with pregnancy-specific self-help materials, can double usual pregnancy-related quit rates, even among high-risk groups. Further, for every dollar invested in these interventions, about $6 is saved. Our results reinforce the need to target less well-educated smokers, but also to seek new ways to reach their partners who smoke and to dispel apparent misconceptions that having previously unaffected children while smoking means that future pregnancies are safe.

Though modest improvements are probable through targeted counselling, more important progress is likely with medication. Recently, the Ontario Medical Association called for revised labeling and more access to nicotine replacement therapies and bupropion hydrochloride among pregnant smokers unable to quit using non-pharmacologic means. Such changes are doubtful, however, without studies to determine whether and how such products can be used safely during pregnancy. More controlled trials are needed, but well-designed, independently monitored registries of women exposed to stop-smoking medications during pregnancy also can provide useful safety data and should be encouraged.

Despite some limitations, such as the study’s single site and biased sample, the message is important. Many pregnant smokers are not being reached by current stop-smoking strategies. New ways to help these women and their partners need to be explored.

REFERENCES


RÉSUMÉ

Contexte : Selon des données récentes, si le tabagisme durant la grossesse est en baisse en Amérique du Nord, c’est plutôt parce que moins de femmes en âge de procréer se mettent à fumer qu’en raison d’une augmentation des taux de renoncement au tabac durant la grossesse. Une explication possible serait la piètre exposition à des stratégies antitabac efficaces. Une meilleure information sur les femmes qui fument durant la grossesse pourrait contribuer à mieux cibler des mesures.

Méthode : Dans cette étude transversale, un échantillon consécutif de 916 femmes (40,4 % de la population admissible) ayant donné naissance à des bébés en santé en 1997-1998 dans un hôpital d’enseignement de soins tertiaires à Hamilton (Ontario) a rempli un questionnaire d’auto-évaluation portant principalement sur les comportements liés à la santé (tabagisme, consommation d’alcool, alimentation et exercice) avant et durant la grossesse, mais comportant aussi des questions sur la présence d’autres enfants et d’autres fumeurs dans le ménage, sur l’état de santé subjectif, sur l’âge et le niveau d’instruction du sujet et sur le fait que la grossesse en cours ait été planifiée ou non. Les facteurs associés au renoncement au tabac durant la grossesse ont été cernés par régression logistique multiple.

Résultats : Les répondantes étaient mieux instruites et en meilleure santé que l’ensemble des femmes en âge de procréer vivant à Hamilton au moment de l’enquête, mais leurs taux de tabagisme étaient semblables. Les deux tiers des anciennes fumeuses (20 % de l’ensemble des répondantes) ont continué à fumer durant leur grossesse. Après rajustement selon d’autres facteurs, nous avons relevé trois facteurs associés au maintien du tabagisme durant la grossesse : la présence d’autres fumeurs dans le ménage; la présence d’autres enfants dans le ménage; et l’arrêt des études après le secondaire.

Conclusion : De nombreuses fumeuses enceintes ne sont pas touchées par les stratégies antitabac actuelles. Il faudrait trouver de nouvelles façons d’aider ces femmes et leurs partenaires.