Simple Colorimetric Procedures to Determine Smoking Status

To the Editor:

I read with interest the paper of Smith et al. (1) concerning the use of colorimetric procedures to determine smoking status. They described in detail the use of simple methods to detect “total nicotine metabolites” in urine. They evaluated qualitative and quantitative methods, both of which had high sensitivity and specificity, in diabetic patients. They concluded, contrary to a previous study, that such methods performed as well in diabetic patients as among other previously studied groups. I would like to add to these findings. We have taken the aforementioned colorimetric procedure one step further by incorporating the diethylthiobarbituric acid assay into an easy-to-use, disposable format known as the Smoking Test Device (2). The test is similar to that described by Smith et al. (1) in being qualitative or quantitative (by comparison to a cotinine calibration curve), and it incorporates a compensation factor for diuresis by use of the natural color of the urine sample. The test, which takes 5 min, can be operated by unskilled personnel to give an assessment of patients’ nicotine intake while they are present in the clinic, thus negating the need for sample processing and transport, and avoiding the substantial delay of laboratory testing. The patient and the healthcare professional can, therefore, have immediate information concerning the patient’s smoking habit. This can establish baseline nicotine metabolite concentrations and monitor adherence to antismoking advice.

Our clinical evaluations of the test have shown that it can play a significant role in reducing smoking in both pregnancy and in patients with cardiovascular disease. Recently, we also used the Smoking Test Device to study smoking of diabetic patients. In this study, we recruited 215 sequential patients attending an inner-city hospital diabetic clinic, who filled in a self-completion questionnaire about their current smoking habits. They included 179 self-reported nonsmokers and 36 (16.7%) smokers. The smoking test results correlated with reported cigarette consumption ($r = 0.72; P < 0.0001$). We found 11 declared nonsmokers to have a Smoking Test result higher than our cutoff value, suggesting that they were current smokers. This gave a deception rate of 5.1%, which is similar to that in other self-completed questionnaire studies.

If treatment of diabetes or other smoking-related diseases is to be successful, accurate information about smoking is essential. Our studies confirm that colorimetric procedures can be used to detect smoking habit in diabetic patients.

References
