

PURPOSE:

The effect of tobacco use on surgical outcomes has been well documented in the medical literature. Both the risk of general complications as well as specific wound related complications are significantly increased in tobacco users. These risks are particularly significant in light of the elective nature of most procedures performed by plastic surgeons. Urine testing for nicotine metabolites represents a simple method to detect tobacco use and to screen patients for surgery. Furthermore, longitudinal measurements of smoking status may be a useful tool to improve patient compliance and to reduce liability. This study was conducted to assess the reliability of reported smoking behavior in plastic surgery patients and correlate the quantitative results of urine nicotine metabolite testing with surgical outcomes.

METHODS:

Routine quantitative urine testing for nicotine metabolites was ordered on all patients scheduled for surgery in a single plastic surgeon's practice. Smoking history was recorded and all patients were counseled pre-operatively regarding risks of tobacco use and regarding cessation. Cessation was made a requirement for any elective procedure involving a flap, skin undermining, or a secondary reconstructive surgery. Cessation was confirmed prior to scheduling surgery in former smokers. Urine samples were obtained before surgery on all patients regardless of history to establish a baseline, to assess compliance and to detect secondary exposure.

RESULTS:

A total of 235 patients underwent 257 procedures. Urine nicotine metabolite measurements were available for 200 procedures. By self-report, 50.5% of patients listed themselves as never having smoked while 41% were past smokers and 8.5% reported themselves as active smokers.

Testing confirmed measurable nicotine metabolite levels in 2% of never smokers, 13% of past smokers and 94% of current smokers. Overall 85% of patients tested negative for nicotine metabolites and 15% were positive with 11.5% demonstrating levels consistent with active use. The complication rates and reoperation rates for the entire series were 12.5% and 6% respectively. Complication and reoperation rates were 30% and 17.4% in patients with urine nicotine metabolite levels of active smokers and 10% and 4.7% respectively for patients who tested negative for nicotine use.

CONCLUSIONS:

The quantitative urine test for nicotine metabolites is an effective method for documenting smoking status in plastic surgery patients and appears to have predictive value for complication and reoperation rates in this population.