Does Exhaled Carbon Monoxide Monitoring Have an Effect on Patients? A Cross Sectional Cohort Study

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INTRODUCTION: Exhaled carbon monoxide (CO) monitoring can assess smoking status in patients. Its effect to influence perceptions regarding smoking cessation is unknown. Prior small studies have suggested that pre/post administration of exhaled CO monitoring in the individual can influence opinions regarding smoking, but this could be a framing effect. The goal of this study was to determine if two separate cohorts of patients would be influenced by an exhaled CO monitor used during a smoking survey in an orthopaedic trauma clinic.

METHODS: Prospective cross sectional cohort study. 256 patients who were known active smokers were approached in clinic after having sustained an operative orthopaedic injury within 3-months. A survey was administered assessing smoking habits, interest in quitting, quit readiness (on a 100 point scale), interest in receiving cessation tools such as nicotine replacement therapy (NRT), medication, and behavioral therapy. The first cohort received the study without exhaled CO whereas the second did, with their results explained. Fisher's exact test and regression methods were used to assess the outcome measures.

RESULTS:

Patients in the exhaled CO cohort demonstrated statistically significant increased interest in receiving NRT (65.6% vs 46.1%, p = 0.003), and readiness to quit (61.4 vs 46.5, p=.0002). The proportion of patients ready to quit immediately and willingness to receive medication to help quit were higher in the exhaled CO cohort, approaching significance (29.7% vs 20.3% p = 0.09 and 49.2% vs 37.5% p=0.75, respectively). Interest in receiving information and joining a group to quit smoking wasn't different between the groups (43.8% vs 36.7% p=.30, 28.1% vs 21.1% p=.218, respectively).

DISCUSSION AND CONCLUSION: In this cross-sectional cohort, exhaled carbon monoxide monitoring increased readiness to quit and interest in using nicotine replacement therapy. Other outcomes such as desire to immediately quit and willingness to use pharmacotherapy approached statistical significance, suggesting a smaller effect. Exhaled CO has a measurable positive effect to increase desire to quit smoking. This suggests it can be used as a tool to influence smoking behavior in orthopaedic trauma patients.