



# The Negative influence of Cigarette Smoke on Passive Smokers-Deteriorated Pulmonary Function Tests and Increased Urine Cotinine Levels

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To the Editor,

We read with great interest the manuscript entitled “Effect of smoking on reversing neuromuscular block” by Ozturk et al. (1), as well as the discussion between Erhan et al. (2) and the authors (3). Ozturk et al. (1), in their original manuscript, indicated that the time to reach train-of-four is longer for smokers; however, their results could not be significant, and the authors proposed larger populations and different perspectives to show if sugammadex use was affected by smoking. Erhan et al. (2) commented on the article with the findings of their study as they found a significantly longer duration of recovery and higher rates of respiratory complications, especially in the postoperative period, in passive smokers than in individuals not exposed to smoking (1, 4). They concluded that considering the possibility of the negative influences of either active or passive smoking on anaesthetic procedures, the findings of the study (1) about recovery times from muscle relaxants could be regarded as clinically relevant, and smoking exposure may be associated with an increase in complication rates and prolonged or troublesome recovery, especially in children. Ozturk et al. (3) appreciated Erhan et al.’s (2) comments and added the importance of cessation of cigarette smoking on human health and healthcare costs of the country (2).

We would like to kindly contribute on the aforementioned studies from a different aspect of clinical view. Many studies have been conducted on active and passive smoking and their influences on the perioperative and postoperative management of anaesthesiology protocols. In our modest research in 1995, we investigated a possible mechanism to explain the negative effects of cigarette smoking on individuals who were indirectly exposed to smoke, that is, passive smokers, through pulmonary function tests and urinary cotinine levels (5). Cigarette smoking is well known to deteriorate pulmonary functions through increased secretions in large pulmonary airways (6). In addition, cotinine, a metabolite of nicotine, which is extracted with urine, is increased in this particular patient population (4). In our study, we correlated the deterioration of pulmonary functions, such as increase in secretions, 50% decrease in forced expiratory flow (predictor of large airways), and decrease of peak expiratory flow with urinary cotinine levels on the amount of passively exposed cigarette smoke (5). Our study results indicated a strong correlation between cigarette smoke exposure and attenuated pulmonary functions at all levels of the pulmonary tree. Concurrently, the scientificity of the results was further strengthened with additional strong correlation with urinary cotinine (5, 7).

In conclusion, passive cigarette smoking should be accounted as an additional risk factor for general anaesthesia and among the negative predictors of peri- and postoperative complications. It may especially delay recovery from

anaesthesia. Preoperative pulmonary function tests, with or without urinary cotinine levels depending on the clinician, may be an early predictor of the course of the anaesthetic period in suspected passive smoker individuals who are prepared for general anaesthesia.

## References

1. Öztürk Ö, Sezen GY, Ankaralı H, Özlü O, Demiraran Y, Ateş H, et al. Effect of Smoking on Reversing Neuromuscular Block. *Turk J Anaesthesiol Reanim* 2016; 44: 206-11. [CrossRef]
2. Erhan ÖL, İleri A, Bulut OK, Özer AB. Passive Smoking Also Affects Recovery from Anaesthesia. *Turk J Anaesthesiol Reanim* 2017; 45: 242-3. [CrossRef]
3. Öztürk Ö, Sezen GY, Ankaralı H, Özlü O, Demiraran Y, Ateş H, et al. Re: Passive Smoking Also Affects Recovery from Anaesthesia. *Turk J Anaesthesiol Reanim* 2017; 45: 243. [CrossRef]
4. Thompson SG, Stone R, Nanchahal K, Wald NJ. Relation of urinary cotinine concentrations to cigarette smoking and to exposure to other people's smoke. *Thorax* 1990; 45: 356-61. [CrossRef]
5. Yildiz Y, Kaymak K, Yaprak M, Alimentorunu A. Investigation of Changes in Pulmonary Function Tests (PFT) in Passive Cigarette Smokers (PCS). *Solunum* 1996; 20: 293-7.
6. Thorley AJ, Tetley TD. Pulmonary epithelium, cigarette smoke, and chronic obstructive pulmonary disease. *Int J Chron Obstruct Pulmon Dis* 2007; 2: 409-28.
7. Yildiz Y, Yaprak M, Kaymak K, Akkan G. Determination of Urine Cotinine Level (ICL) in Passive Cigarette Smokers (PSI). *Solunum* 1996; 20: 149-53.

## Author's Reply

### Re: The Negative influence of Cigarette Smoke on Passive Smokers-Deteriorated Pulmonary Function Tests and Increased Urine Cotinine Levels

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Dear Editor,

We thank the author for the contribution he has made by referring our article named "Effect of smoking on reversing neuromuscular block" which was published on *Turkish Journal of Anaesthesiology and Reanimation*.

In our study we aim to compare the effects of sugammadex, which is used to antagonize rocuronium bromide that is a nondepolarizing neuromuscular blocker, smoking and non-smoking patients and the duration of antagonizing. The intubation times of smoking and non-smoking patients, the first rocuronium bromide dose and the time of reaching train of four (TOF) 0.7–0.8–0.9 in the stage of extubation were compared and as a result of our study statistically relevant difference was observed.

In the study named "The Negative influence of Cigarette Smoke on Passive Smokers - Deteriorated Pulmonary Function Tests and Increased Urine Cotinine Levels" which study, correlated the deterioration of pulmonary functions, such as increase in secretions, decrease in Forced expiratory flow (FEF) 50% (predictor of large airways) and decrease of PEF (peak expiratory flow) with urinary cotinine levels on the amount of passively exposed cigarette smoke. The results of study indicated a strong correlation between cigarette smoke exposure and attenuated pulmonary functions at all levels of the pulmonary tree. Whilst, the scientificity of the results were further strengthened with additional strong correlation with urinary cotinine. This result supports our study. Although it is known that smoking increases the respiratory tract complications, when literature is searched different results have been found about the effect on rocuronium bromide.

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