

Anaesthesiology

Smokers and those exposed to passive smoke require more anesthetic and painkiller during operations

Brussels, Belgium (May 29, 2015) - Research published at this year's Euroanaesthesia meeting in Berlin (30 May-2 June) shows that both smokers and those exposed to passive smoke require more anaesthetic and painkillers to reach the same level of anaesthesia as non-smokers. The study is by Dr Erdogan Ozturk, Department of Anaesthesiology and Intensive Care, Bezmialem Vakif University, Istanbul, Turkey, and colleagues.

Tobacco smoke consists of more than 4,000 particles with toxic and carcinogenic (cancer causing) properties, in both gas and particulate form. A limited number of studies exist indicating that smoking increases anaesthetic requirements; however the anaesthetic requirements for people exposed to environmental tobacco smoke (passive smokers) has not been studied at all. In this new study, the authors investigated whether there is a difference among smokers (S), passive smokers (PS), and non-smokers (NS) in terms of intraoperative anaesthetic and painkiller consumption.

A total of 90 women undergoing total abdominal hysterectomy were enrolled in the study. The patients were divided into three groups (30 patients each) based on smoke exposure, confirmed by measurement of serum cotinine (a metabolite of nicotine and marker of tobacco smoke exposure). Group S consisted of smokers, Group PS consisted of passive smokers, and Group NS, consisted of women with no history of smoking and also no environmental smoke exposure.

Standard total intravenous anaesthesia was performed on all patients. Bispectral index value (BIS) value (a guide to the patient's level of consciousness) was maintained between 40-60. After the operation, the total amount of the anaesthetic propofol and the painkiller remifentanil used was recorded.

The amount of propofol used for induction of anaesthesia was, for Group S, PS and NS, 102.76 mg, 84.53 mg, 63.17 mg respectively. In Group S the amount was 38% higher than in Group NS and 17% higher than in Group PS, and in Group PS the amount used was higher 18% than in Group NS.

Total propofol usage throughout the whole anaesthesia was also different between groups: for Group S, PS, and NS the amounts used were 179.38 mg, 150.50 mg, and 119.37 mg respectively. In Group S the amount used was 33% higher than in Group NS and 16% higher than in Group PS, and in Group PS 20% higher than in Group NS.

The total amount of the painkiller remifentanil used was, for Group S, PS, and NS: 1315 µg, 1241 µg, and 1010 µg respectively. Group S had 23% higher usage than Group NS and 6% more compared to Group PS; and in Group PS usage was higher 18% than in Group NS.

The authors conclude: "The amounts of anaesthetic and painkiller required to ensure equal anaesthetic depth in similar surgeries was higher in active smokers and passive smokers compared to non-smokers."

They suggest that nicotine could affect the metabolism of anaesthetic drugs in the liver, or may desensitise of the some nociceptors (nerve cells) that sense pain.

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