



AUSTRALIAN AND NEW ZEALAND COLLEGE OF ANAESTHETISTS

ABN 82 055 042 852

STATEMENT ON SMOKING AS RELATED TO THE PERIOPERATIVE PERIOD

The Australian and New Zealand College of Anaesthetists recognises that tobacco smoking is addictive and can damage both the health of smokers and those passively exposed to tobacco smoke. The College supports all measures to decrease tobacco consumption and involuntary exposure to tobacco smoke (i.e. passive smoking).

Some adverse effects of smoking are considerably lessened following cessation of smoking.⁽¹⁾ These benefits are particularly relevant in the perioperative period.

1. Smoking increases the blood concentration of carboxyhaemoglobin. This has an average elimination half-life of four hours⁽²⁾ and therefore abstinence of only 12 hours will greatly reduce carboxyhaemoglobin concentrations, improve oxygen content and availability, and reverse negative inotropic and arrhythmic effects on the heart. Smokers' polycythaemia, increased blood viscosity, increased fibrinogen and hypercoagulable state take a few days to two weeks to reverse.⁽⁴⁾
2. Nicotine increases heart rate, myocardial contractility, blood pressure and peripheral vasoconstriction.⁽³⁻⁵⁾ These adverse effects generally improve following 12 - 24 hours of abstinence.⁽⁶⁾
3. In the respiratory system, smoking causes hypersecretion of mucus, impairment of tracheobronchial clearance and small airways narrowing, and smokers have an increased incidence of postoperative respiratory problems⁽⁷⁾. Smokers have a greater tendency to develop hypoxia in the postoperative recovery period.⁽⁸⁾ If smoking is stopped, sputum production initially increases for 1-2 weeks and then declines over the next month. Compared to nonsmoking patients, production of purulent sputum in the postoperative period is 50% higher in patients who stopped smoking < 8 weeks prior to surgery, 25% higher in those who ceased to smoke > 8 weeks prior to surgery, and no different to nonsmokers if cessation of smoking occurred > 6 months prior to surgery.^(9,10) Small airways function improves after one month, with further improvements up to six months.⁽¹¹⁾ The three times higher incidence of chest infection and other pulmonary complications in smokers following coronary artery surgery is reduced to nonsmoking levels if smoking is stopped two months preoperatively, but increased to five times higher incidence if smoking is only ceased for less than eight weeks preoperatively.^(9,12) There is also evidence of increased respiratory complications during and after general anaesthesia in children exposed to environmental tobacco smoke.⁽¹³⁾

4. Smoking may adversely affect immune mechanisms.^(14,15) Decreased levels of immunoglobulins and cells involved in the immune response in smokers apparently return to normal following a six month period of abstinence.
5. Perioperative analgesic requirements are increased in smokers.^(16,17) This may be due to withdrawal of endogenous opioid stimulation, or increased enzyme induction which improves 6 - 8 weeks after cessation of smoking⁽¹⁸⁾.
6. Surgical wound complication rates are higher in smokers⁽¹⁹⁾, particularly following plastic and reconstructive surgery,^(20,21) bone surgery^(22,23), bowel surgery⁽²⁴⁾ and microsurgery⁽²⁵⁾. Smoking has adverse effects on the microcirculation⁽²⁶⁾ that may impair wound healing.⁽²⁷⁾

CONCLUSION

Tobacco smoking is an identifiable major risk factor relating to surgery and the perioperative period.

Patients who smoke should be encouraged to stop smoking at least six to eight weeks before surgery. In the short term, smoking should not be permitted 12 hours before surgery.

The College supports all reasonable measures to reduce tobacco use in the community.

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