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JA SYMPOSIUM

Cigarette smoking-induced airway hyperreactivity

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Smoking and chronic obstructive pulmonary disease (COPD) are common in patients who undergo major surgeries such as those for aortic or lung diseases. These patients seem especially at risk for intra- and postoperative respiratory complications. Postoperative pulmonary complications occur up to six times more frequently in smokers than in non-smokers, and smokers carry a 70% greater risk of coronary artery disease. In addition, complications such as laryngospasm and cough on induction of anesthesia, and bronchospasm during endotracheal intubation, are more common in smokers. During recovery from anesthesia, smokers are at increased risk of hypoxemia. Some of the effects of smoking are chronic and irreversible. There is evidence, however, to show that a significant improvement in some of the adverse pathophysiological effects, especially cardiovascular events, can be achieved by even a short period of preoperative abstinence. Recent studies have revealed that patients who had stopped smoking for 2 months or less had a pulmonary complication rate almost four times that of patients who had stopped smoking for more than 2 months, and that patients who had stopped smoking for more than 6 months had rates similar to those who had never smoked (Fig. 1) [1].

Increased airway hyperresponsiveness is a major concern in the perioperative management of patients with bronchial asthma and COPD. Guidelines using evidence-based medicine are continually being updated and published regarding the diagnosis, treatment, and prevention of these respiratory disorders. Perioperative management in these patients involves (1) adequate control of airway hyperresponsiveness, including detection of purulent sputum

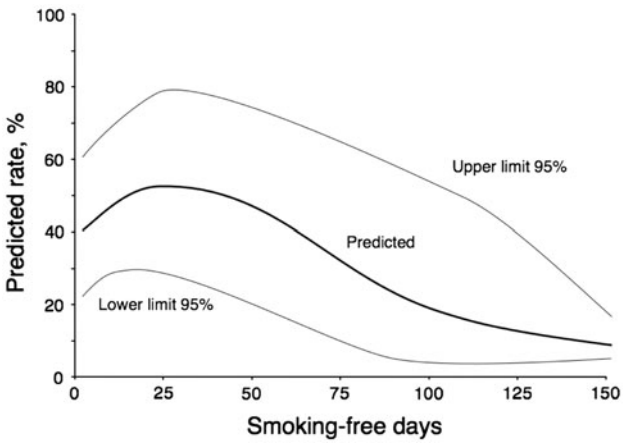

Fig. 1 Predicted rate of pulmonary complications after coronary artery bypass grafting, based on logistic regression analysis, versus duration of time since smoking had been stopped (smoke-free days). (Modified from Warner et al. [1], with permission)

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and infection before surgery; (2) evidence-based control of anesthesia; and (3) aggressive use of beta-2 adrenergic stimulants and systemic administration of steroids for the treatment of acute attacks. Good preoperative control, including use of leukotriene antagonists, can reduce the incidence of life-threatening perioperative complications. Awareness of recent guidelines is thus important in the management of patients with airway hyperresponsiveness.

"Do I advise my patient to stop smoking preoperatively?" "Of course !"

Reference

1. Warner MA, Offord KP, Warner ME, Lennon RL, Conover MA, Jansson-Schumacher U. Role of preoperative cessation of smoking and other factors in postoperative pulmonary complications: a blinded prospective study of coronary artery bypass patients. Mayo Clin Proc. 1989;64:609–16.