

選抜制度	日程	研究科	領域	科目
社会人	10月日程	看護学研究科	療養生活支援看護学領域	外国語(英語)
受験番号		氏名		採点

I. Effects of Smoking on Physical Function Before Surgery

① Nicotine, a major component of tobacco smoke that affects circulatory function, increases heart rate and systolic and diastolic blood pressure. Smoking causes coronary and systemic microcirculation disorders as a result of decreasing vasodilator reserve over time. The level of carboxyhemoglobin (COHb) in the blood is significantly higher in smokers than in nonsmokers. Since CO causes a left shift of the oxyhemoglobin dissociation curve, and binds to cytochromes to inhibit aerobic metabolism, smokers have chronic tissue hypoxia.

Circulatory dysfunction and tissue hypoxia start to improve after 2 to 3 days of abstinence. Ciliary movement starts to recover in 4 to 6 days, and sputum volume is normalized in 2 to 6 weeks. However, more than 3 months of abstinence is required to normalization of clearance, and at least 4 weeks are required to improve peripheral airway disorders.

Smoking also impairs immune function. It has been reported that the prevalences of chronic bronchitis in patients planned to undergo surgery are about 5% and 25% among non-smokers and smokers, respectively.

II. Effects of Smoking on the Results of Surgery

1. Intraoperative Complications

Schwilk et al reported that the incidence of intraoperative respiratory complications (reintubation, laryngospasm, bronchospasm, aspiration, hypoventilation, and hypoxemia) was 3.1% among non-smokers and 5.5% among smokers. The relative risk of intraoperative respiratory complications was 1.8 in all smokers, 2.3 in young smokers, and 6.3 in young obese patients. The incidence of bronchospasm was especially high in smokers.

2. Postoperative Complications

Impaired pulmonary function due to smoking may cause postoperative respiratory complications. Wellman et al have reported that the incidence of respiratory complications after abdominal or chest surgery is twice as high in smokers as in non-smokers, and Bluman et al have reported a corresponding ratio of 4. Relationships of smoking with adult respiratory distress syndrome (ARDS), acute myocardial infarction, development of atrial fibrillation, and perioperative death have been reported.

III. Smoking Cessation Support as Pre- and Postoperative Management

1. Effects of Smoking Cessation Before Surgery on Postoperative Complications

Warner et al reported that the incidence of postoperative respiratory complications was significantly lower in patients who quit smoking for ≥ 8 weeks before coronary surgery (14.5%)

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than in those who quit smoking for less than 8 weeks (57.1%), and that the incidence of such complications did not differ between patients who quit smoking for ≥ 6 months before coronary surgery and non-smoking patients. Nakagawa et al reported that the incidence of postoperative respiratory complications following pulmonary surgery was significantly lower in non-smokers (23.9%) than in smokers (43.2%), and lower in smokers who quit smoking for ≥ 4 weeks (34.7%) than in those who continued smoking. These findings indicate that patients should quit smoking for 4 to 8 weeks before surgery to prevent postoperative respiratory complications. Kuri et al reported that the incidence of delayed wound healing following head and neck reconstructive surgery was 85.7% in smokers, 67.6%, 55.0%, and 59.1% in smokers who had quit smoking for ≥ 3 weeks, ≥ 6 weeks, and ≥ 7 weeks before surgery, respectively, and 47.5% in non-smokers, and that smoking cessation for at least 3 weeks before surgery improves wound healing in such surgery.

2. Effects of Preoperative Smoking Cessation Treatment

In a randomized comparative study by Møller et al in patients who did or did not receive preoperative smoking intervention before surgery, the incidence of postoperative complications was significantly lower in the smoking intervention group (18%) than in the control group (52%). The incidence of postoperative complications did not decrease in smokers who decreased the number of cigarettes smoked before surgery. These findings suggested that smoking cessation treatment but not a simple reduction of the number of cigarette use was effective in preventing postoperative complications. The authors also conducted a study in which the incidence of postoperative complications was significantly decreased in patients who received smoking cessation treatment for ≥ 4 hours/week and in patients with higher educational status.

Detailed explanation of the risks of postoperative complications and delayed wound healing in smokers may motivate patients to quit smoking before surgery and continue abstinence thereafter. It has been found that smokers planned to undergo surgery are more highly motivated to quit smoking than other smokers, and that simple instructions and treatment for smoking cessation may be highly effective. In particular, patients with lung cancer are highly motivated, and it has been reported that abstinence rate is improved when varenicline and nicotine replacement therapy are introduced immediately after the diagnosis of lung cancer.

3. Prevention of Smoking Relapse

② Although many patients quit smoking when cancer is diagnosed, 14 to 58% of patients continue smoking, and patients who quit smoking before surgery often restart smoking after the surgical treatment. Further studies should be performed to investigate how to approach patients who restart smoking after discharge or treatment and how to use effective measures including varenicline and nicotine replacement therapy.

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【設問1】 下線部①を日本語に訳しなさい。

【設問2】 喫煙と術後合併症との関連について、日本語で答えなさい。

【設問3】 術前の禁煙を動機づけるためのアプローチについて、日本語で答えなさい。

【設問4】 下線部②を日本語に訳しなさい。

【設問5】 この論文のタイトルとして最も当てはまる番号1つに○をつけなさい。

1. Intensive Smoking Cessation Treatment
2. Status Before Surgery and Surgical Diseases
3. Education on the Harms of Smoking and Widespread Implementation of Smoking Cessation Treatment