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# Association of chronic pulmonary obstructive disease (COPD) and complications in head and neck surgery

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## Abstract

COPD presents in a variety of forms patients with head and neck cancer; it may affect therapeutic decision-making or postoperative outcomes due to its complications.

**Aim:** To correlate the severity of COPD in patients with head and neck SCC treated with surgery, who present postoperative complications.

**Method:** A retrospective analysis of 31 patients undergoing en bloc resections, from 2008 to 2009. All cases were evaluated and classified using the GOLD scale. The COPD grade, intubation period, ICU stay and hospital stay were studied.

**Results:** The mean age was 64.8 years; COPD was mild in 24 cases, moderate in 6 and severe in 1 case. ICU stay was 2.7 days and the intubation period was 1,12 days. The mean hospital stay was 24.4 days. There was no relation between COPD grade and brochopneumonia, intubation period, ICU stay and hospital stay.

**Conclusion:** Patients with head and neck SCC have a tendency to acquire COPD; its severity was not related with postoperative pulmonary complications, prolonged intubation period, ICU stay and hospital stay.

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## INTRODUCTION

Tobacco consumption is closely related with head and neck cancer and chronic obstructive pulmonary disease (COPD).[1,2] The frequency of COPD (grades I to IV) has increased 4 to 9% worldwide.[3] Smoking is recognized at present as a risk factor for several chronic diseases. COPD and head and neck cancer are strongly associated with smoking; this relation increases with duration of exposure and the lifelong tobacco load of individuals.[4-6]

Head and neck cancer, and specifically squamous cell carcinoma of the upper aerodigestive tract, is one of the most common cancers in the world population. Its treatment requires a multidisciplinary approach comprising surgery, radiotherapy and chemotherapy, especially at more advanced stages of disease.[2,7] Head and neck cancer is treated with surgery, radiotherapy, chemotherapy, or any combination of these.[8] These approaches usually cause significant morbidity to patients; other concomitant diseases hinder necessary therapy, at times even contraindicating the required treatment. This reality may affect the clinical progression or the survival of these patients.[9,10]

The incidence of head and neck cancer is highest in the elderly population. These patients may require major surgery as one of the treatment options; if lung function is compromised, they are at a higher risk of developing severe pulmonary complications, which may entail longer hospital or intensive care unit (ICU) stays, more time intubated, use of wide spectrum antibiotics, and other measures. The preoperative evaluation is therefore extremely important; studies have shown that when well carried out, the intraoperative period is safer, and there are fewer postoperative complications. Postoperative pulmonary complications are common and are one of the main causes of morbidity and mortality. Clinically significant complications include atelectasis, infection (bronchitis and e pneumonia), respiratory failure, exacerbated chronic lung disease, and bronchospasm. Risk factors for these complications are emergency surgery, age over 50 years, surgery lasting over three house, prolonged mechanical ventilation, poor health status as defined by ASA class over 2, congestive heart failure, COPD, PaCO2>45 mmHg, an abnormal chest X-ray, cigarette smoking within the past 8 weeks, upper airway infection, and the need for a nasogastric tube postoperatively.[1,11,12]

We believe that COPD is present to some degree in head and neck squamous cell carcinoma cases because the same risk factors are present in both categories of patients. Thus, the presence of COPD may alter clinical decision-making since it entails specific complications.

## OBJETIVE

The purpose of this study was to correlate COPD grade with the incidence of postoperative complications in patients with head and neck squamous cell carcinoma following surgery.

## MATERIALS AND METHODS

A retrospective study was carried out in the form of a review of registries of patients submitted to en bloc surgery (removal of the primary tumor and neck dissection) for the treatment of head and neck squamous cell carcinoma from 01 February 2008 to 31 January 2009. All patients had been evaluate preoperatively at the Respiratory Disease Unit in the same hospital and classified according to COPD grade based on Gold's scale (Table 1).

Antibiotic prophylaxis (ceftriaxone and clindamycin) was given to all patients at the time of induction of anesthesia and maintained until 48 hours after surgery. These drugs were continued at therapeutic doses in patients that developed postoperative infection. Patients were sent to the ICU for the immediate postoperative period. Correlations between COPD and duration of orotracheal intubation, ICU stay, and postoperative hospital stay were evaluated. Patients with incomplete files were excluded from the study. The $\chi^2$ test or Fisher's exact test were applied for quantitative variables. The

**Table 1.** Spirometry criteria for COPD severity according to Gold

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|---|---|---|
| I: mild COPD | FEV1/CVF < 0.7<br>FEV1 ≥ 80% of predicted | In this stage patients may not be aware of abnormal lung function. |
| II: moderate COPD | FEV1/CVF < 0.7<br>50% ≤ FEV1 < 80% of predicted | Symptoms develop, such as breathlessness, typically with effort. |
| III: severe COPD | FEV1/CVF < 0.7<br>30% ≤ FEV1 < 50% of predicted | Breathlessness typically worsens and often limits daily activities. Exacerbation begins to appear. |
| IV: very severe COPD | FEV1/CVF < 0.7<br>FEV1 < 30% of predicted OR<br>FEV1 < 50% of predicted associated with acute respiratory failure | The quality of life is significantly affected and exacerbation may place life at risk. |