

# Bronchogenic carcinoma: Has the outlook changed?

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## ABSTRACT

**Background:** The purpose of the study was to determine the proportion of patients with bronchogenic carcinoma amenable to curative surgery at diagnosis.

**Methods:** A retrospective approach was used in the setting of an academic hospital. The patients used for the study were all those presenting at the hospital over a two-year period (1999-2000) who were confirmed to have primary bronchogenic carcinoma. No interventions were undertaken.

**Results:** Eighty-six (86) patients were confirmed with bronchogenic carcinoma during the study period. The mean age of the patients was  $57.9 \pm 10.8$  years. Eighty-five percent (85%) were current tobacco users. Ninety percent (90%) of the cancers were of the non-small cell variety. Only 15% of the patients were deemed suitable for curative surgery. The tumour histology, the sex of the patients and the duration of symptoms prior to presentation had no bearing on the probability of being suitable for curative surgery. Almost 40% of the patients had metastatic disease at presentation.

**Conclusions:** The prognosis of bronchogenic carcinoma remains extremely grave. Tobacco use remains an important risk factor.

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### Background

Primary bronchogenic carcinoma is a major health problem with a generally grim prognosis.<sup>1</sup> It is the leading cause of cancer deaths in both women and men in the USA.<sup>2</sup> The overall five-year survival from lung cancer is 14%. For patients with local and regional disease, the survival at five years is 48% and 18% respectively. At the time of diagnosis, only 15% of all lung cancer patients will have local disease and more than 55% will have distant metastatic cancer.<sup>3</sup>

Ninety percent (90%) of patients with lung cancer of all histological types are current or former cigarette smokers.<sup>1,4</sup> Several established or suspected human carcinogens are present in the work environment and it is estimated that 3% to 17% of lung cancers are occupationally related.<sup>1,3</sup>

Mass screening for lung cancer with chest radiology or sputum tests for malignant cells have been discour-

aged for decades.<sup>5</sup> Recently, there has been some resurgence of interest in screening for lung cancer, partly as a result of the development of new imaging techniques that enable the detection of neoplasms at a much earlier stage than was previously possible.<sup>6,7,8</sup>

The treatment of choice for bronchogenic carcinoma is surgical resection, because it is the modality that offers the greatest prospects for a cure.<sup>9</sup> A small beneficial effect on survival can be demonstrated with chemotherapy in patients with inoperable lung cancer.<sup>10</sup> Radiation therapy is palliative and works best in the management of bone, brain and retinal metastases.<sup>11</sup>

### Objectives

The primary objective was to determine the proportion of patients with bronchogenic carcinoma amenable to curative surgery at diagnosis. The

secondary objectives were:

- To compare the probability of fulfilling the criteria for curative surgery, at diagnosis, between the two major histological types (i.e. small vs. non-small cell) and the two sexes (male and female); and
- To compare the duration of symptoms prior to diagnosis between the operable and the inoperable patients.

### Patients and methods

The study was a record review of all cases of histologically confirmed primary bronchogenic carcinoma, diagnosed over a two-year period (1999-2000). For the purposes of this study, bronchogenic carcinoma refers to the following major cell types: small cell carcinoma, squamous cell carcinoma, adenocarcinoma and large cell carcinoma. The last three histological types were grouped together as non-small cell lung cancers. The data obtained

from the records included the patients' demographic data, tumour histology, smoking habits, diagnostic procedures, criteria used to exclude patients from curative surgery and the duration of symptoms prior to presentation.

The data were subjected to statistical analysis, with a  $p$  value of  $=0.05$  denoting statistically significant differences. Fisher's exact test was used to compare the probability for curative surgery for the following variables: tumour histology, the sex of the patients and the mean duration of symptoms prior to diagnosis.

## Results

Eighty-six patients were confirmed to have primary bronchogenic carcinoma during the study period. This group consisted of 74 (86%) males and 12 (14%) females. The mean age of the group was  $57.9, \pm 10.8$  years. Eighty-five percent (85%) of the patients were current tobacco users. There were no statistically significant differences between the ratios of smokers to non-smokers amongst males and females ( $P=0.079$ ). The mean duration of symptoms prior to diagnosis was  $3.9, \pm 3.2$  months. Ninety percent of the cancers were of the non-small cell variety.

Figure 1 indicates the diagnostic procedures that were employed.

Of the 86 patients, only 13 (15%) were deemed operable after the appropriate evaluation. There was no statistically significant difference between the two tumour types (small cell versus non-small cell) with regard to the probability of meeting the criteria for curative surgery at diagnosis ( $P=1$ ). About 12.2% of the male patients were deemed operable, compared to 33.3% of the females. This difference was not statistically significant ( $P=0.079$ ).

A comparison of the mean duration of symptoms prior to diagnosis between the operable and inoperable patients revealed no statistically significant differences ( $P=0.6$ ).

Thirty-four patients (39.5%) showed evidence of metastatic disease at presentation. This consisted of 50% of the small cell tumours and 38.5% of the non-small cell variety. This difference was not statistically significant ( $P=0.707$ ). Thirty-nine patients (45%) were excluded from curative surgery on the basis of advanced local disease (T4) and poor lung function tests.

## Discussion

The study suggests that the prognosis of lung cancer remains grim. Therapeutic advances have had little impact on the outcome. The burden of disease still falls disproportionately on males. This may reflect the male-dominated smoking habits in the com-

munity we serve. The majority of patients present within three to six months after the onset of symptoms, yet 85% were found to be inoperable. This suggests that symptoms in patients with lung cancer develop late in the disease.

Tobacco use remains an important risk factor. The key intervention remains prevention and broad efforts to help people to stop smoking and to prevent people from starting to smoke must continue. Achieving this goal is hampered by the strong addictive power of nicotine. The use of pharmacotherapy and, to a lesser extent, counselling, provides considerable assistance.<sup>12</sup> Political courage to inhibit indoor smoking to reduce second-hand smoke inhalation is necessary. Restriction of public smoking has persuaded many smokers to quit smoking.<sup>13</sup>

Although efforts to reduce smoking are crucial to the control of lung cancer, the development of newer treatment modalities for patients who currently have the disease is also critical. Research aimed at finding better, inexpensive and readily available techniques for the early detection of lung cancer needs to be pursued with vigour and rigor.✶

## Conflict of interest:

None declared

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**FIGURE 1:** Bronchoscopy: washings, brushings and forceps biopsies

