

Methodology and results of bronchopulmonary cancer detection in Slovenia 1970–1992

Jurij Šorli

Institute for Respiratory Diseases, Golnik, Slovenia

The results of bronchopulmonary cancer detection in pneumonology departments represent over 90 % of all microscopically verified cases of bronchopulmonary cancer in Slovenia. The incidence rose from 370 in 1970 to 782 in 1992, with male prevalence (85 %). Passive detection was preferentially used as mass fluoroscopy has been gradually abandoned after 1972. Bronchoscopy was always the main diagnostic method (92.1 % in 1970 and 90.7 in 1992), followed by perthoracic fine needle aspiration biopsy (3.8 % and 4, 5 %). Other methods (sputum cytology, mediastinoscopy, thoracoscopy, thoracotomy) accounted for 4.1 and 4.8 % respectively. There is a slight predominance of central type (53.7 vs. 46.3 % in 1992). Planocellular type was predominating (68.9 % in 1970, 39.8 % in 1992), followed by small-cell (10.1 and 19.2 %), adeno- (8 and 16.5 %), and large-cell (7 and 13.6 %) carcinomas. In 1992 surgery was the therapy of choice in 26,3 %, chemotherapy in 15 % and radiotherapy in 22,5 % of newly detected cases.

Key words: lung neoplasms-diagnosis; Slovenia

Introduction

Today, bronchopulmonary carcinoma is the most prevalent type of cancer, and is responsible for more cancer-related deaths than any other tumour in man. In some countries in the world it has surpassed breast carcinoma in women as the most lethal tumour.¹

These facts stress the importance of research into the modalities and results of lung cancer detection in every country facing rise in the incidence of bronchopulmonary carcinoma, in

order to find the way to detect and properly diagnose lung carcinoma as early as possible, and to institute adequate therapy.

In Slovenia, in contrast to some other countries, diagnosis and partly also therapy of bronchopulmonary cancer is almost exclusively carried out in the pneumonology departments and out-patient clinics. Our aim was, therefore, to investigate methodology and evaluate the results of lung cancer detection in these units in the period from 1970 to 1992.

Correspondence to: Prof. Jurij Šorli, M.D., Ph.D.,
Institute for Respiratory Diseases, 64204 Golnik, Slovenia.

Material and methods

The data from annual Golnik Epidemiology Reports were used as a source, together with

the data from individual pneumonology departments of regional hospitals in Slovenia.

Statistical evaluation was performed by means of SAS software.

Results

Figures 1a and 1b present newly detected patients with lung cancer by age and sex. There

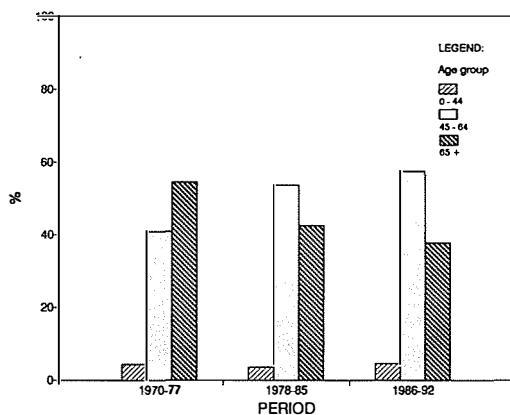


Figure 1a. Distribution of newly detected male patients with lung cancer according to age (1970-92).

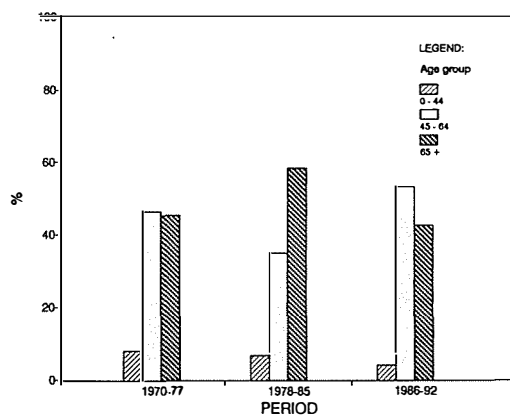


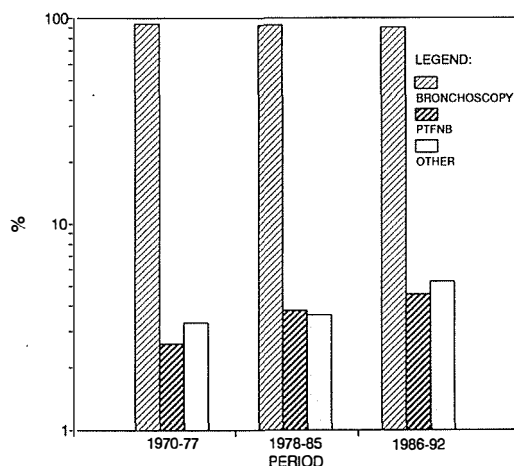
Figure 1b. Distribution of newly detected female patients with lung cancer according to age (1970-92).

is an obvious increase in the number of patients, especially in the 45-64 year age group in both males and females.

Passive detection was the most frequently used mode of detection throughout the obser-

ved period: 82.3% in 1970-77 and 93.4% in 1986-92 period. Mass X-ray method made an important contribution (14.7%) in the period 1970-77 only; after 1972 it has been gradually abandoned because of a high cost-benefit ratio in tuberculosis detection.

Diagnostic methods were not grossly changed in the observed period, with bronchoscopy leading and others (perthoracal fine needle biopsy, sputum cytology, mediastinoscopy, thoracoscopy, thoracotomy) contributing less than 10% (Figure 2).



PTFNB = Perthoracic fine needle biopsy.

Figure 2. Diagnostic methods for verification of lung cancer.

Cytology alone or in combination with histology was the most frequent method of cancer verification. In 1970-77, cytology alone was used in 60% of cases, with gradual decrease to 51% in 1986-92. In the same periods both cytology and histology were used in 35% and 46% of cases respectively.

Histologic type of the detected carcinomas (Figure 3) significantly changed over time, with a decrease in squamous and an increase in adeno- and partly also small- and macrocellular types.

The detection of carcinoma required adequate therapy. The progress in therapeutic decision making in 1970-92 period is shown in Figure 4.

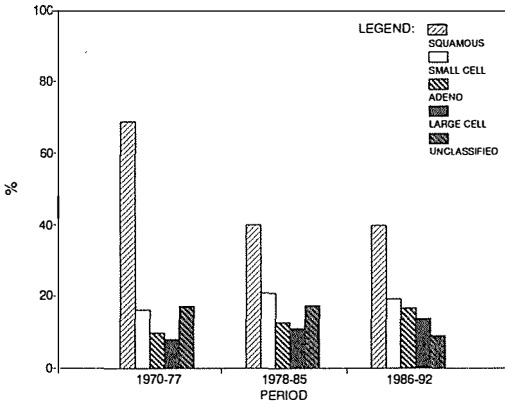


Figure 3. Distribution of detected lung cancer according to histologic type in %.

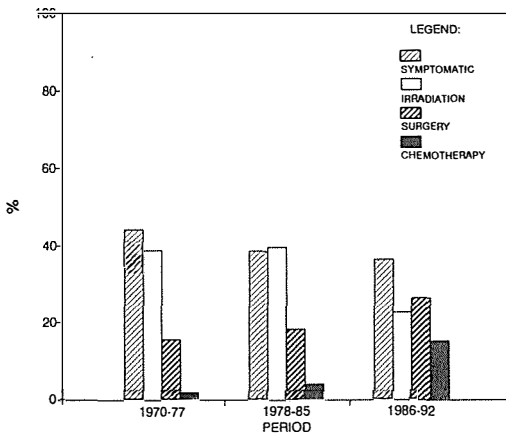


Figure 4. Modes of therapy in newly detected patients.

Discussion

Growing trends in lung cancer incidence are characteristic for industrial developed countries.² It is quite sad that by this standard Slovenia is a well developed, industrial country. The incidence of lung cancer in the age group 45-64 years increased by almost 50%, mostly in men, but with an important contribution of female population in the last third of the observed period. Smoking could be blamed for 90% of causes in males but only for 73% in female population as observed also by others.³

It is clear from our data that the increase in lung cancer incidence could not be ascribed to a better or modified mode of detection. Also

in the period of mass X-ray, more than 50% of detected patients already had symptoms of the disease.

Changes in bronchoscopy, with prevalent use of flexible instruments have dramatically changed the distribution of lung cancer histology. As more peripheral tumours were being diagnosed, the percentage of squamous type steadily decreased and of adeno increased. This pattern was observed also by others.^{4,5} The increase in large and small cell types was less significant and mostly due to better classification.⁶

In contrast to other authors, we used cytology more frequently as the only method of cancer verification.⁷ This was mostly due to a better access to this type of service. In the last observation period both methods have been used with more balanced use of different therapies, with only a small proportion of patients being treated only symptomatically. It is most promising that the increase is greatest in surgery and chemotherapy as these two methods contribute most to the survival of lung cancer patient.⁸

References

1. Beckett WS. Epidemiology and etiology of lung cancer. In: Matthay RA ed. *Lung cancer*. Philadelphia: WB Saunders, 1993; 1-15.
2. Whelan SL, Parkin DM, Masuyer E eds. *Patterns of cancer in five continents*. Lyon: IARC, 1990 (IARC Sci Publ; 102).
3. Garfinkell, Stellman SD. Smoking and lung cancer in women: Findings in a prospective study. *Cancer Res* 1988; **48**: 6951.
4. Zavala DC. Diagnostic fiberoptic bronchoscopy. *Chest* 1975; **68**: 12-19.
5. Popp W, Rauscher H, Ritschka L, et al. Diagnostic sensitivity of different techniques in the diagnosis of lung tumours with flexible fiberoptic bronchoscopy. *Cancer* 1991; **67**: 72-75.
6. Truong LD, Underwood RD, Greenberg SD, et al. Diagnosis and typing of lung carcinomas by cytopathologic methods. *Acta Cytol* 1985; **29**: 379-81.
7. Mermolja M. Possibilities and limitations of cytology in the diagnosis of lung tumors. *Radiol Oncol* 1994; **28**: (in press).
8. Naruke T, Goya T, Tsuchiya R, et al. Prognosis and survival in resected lung carcinoma based on the new international staging system. *J Thorac Cardiovasc Surg* 1988; **96**: 440-7.