

LUNG CANCER IN SWEDISH MALES ON THE DECLINE

Fifty years ago, lung cancer was a rare disease and today it is the most common cancer in the world, having surpassed stomach cancer in the 1980s. Lung cancer is particularly prevalent in industrialized countries and accounts for 21% of all cancer deaths in men and 8% in women in the European Union. In the Nordic countries taken together, lung cancer is the second commonest type of cancer among males and third among females. In Sweden, lung cancer comprises about 9% of cancer incidence in males and 5% in females. The increasing incidence of lung cancer levelled off in males in the late 1970s, but has continued to increase in females, although from a much lower level than in males. Over the past 20 years the annual change in age-standardized incidence is -0.2% in Swedish males and $+3.7\%$ in females.

In this edition of *Acta Oncologica*, Peter Wersäll et al. report a statistically significant decrease in the incidence of lung cancer amongst men in larger Swedish cities, but not in the country as a whole. The decrease was mainly attributable to changes in the group of men >65 years old, although a similar decrease was observed also amongst younger men. Despite this trend over the period 1975–1989, the age-standardized incidence in men in larger cities was still approximately 50% higher than in men from other parts of the country.

This changing pattern is most probably related to changing smoking habits. The prevalence of smoking amongst Swedish males has decreased since the 1960s when 50% of them were smokers. Today about one out of four Swedish males or females smoke. Earlier the prevalence of smoking was higher in the large cities, but today the prevalence does not differ much between different parts of Sweden. It is therefore not surprising that the differences in lung cancer incidence between men in larger cities and those in other parts of the country are coming closer together. This statistical decrease in the incidence of lung cancer amongst men was expected, but has not previously been described in an international scientific journal.

Cigarette smoking is the best known and best documented risk factor for lung cancer. Thousands of experimental and epidemiological studies have been published since 1950, when the first reports on the association between smoking and lung cancer appeared. They have confirmed this conclusion and have provided additional evidence that smoking is a cause of cancers of many other sites as well. In 1986, tobacco smoke was added to the list of agents found by the International Agency for Research on Cancer to be carcinogenic to humans. The US Surgeon General estimated in 1989 the population attributable risk for smoking and lung cancer in the USA to be 80–90%. Estimates for the Nordic countries are similar.

Tobacco usually acts synergistically with occupational carcinogens. Radon in homes and environmental tobacco smoke (passive smoking) are the most important non-occupational forms of exposure. Radon and tobacco smoking interact in an almost multiplicative way.

The great efforts to improve the prognosis for patients treated for lung cancer have not had any impact on survival over the last 30 years, and 5-year relative survival rate has remained at 5–10%. No convincing evidence exists as to the beneficial effects of early diagnosis or screening for lung cancer. Primary prevention thus appears to be the only way of reducing the mortality from lung cancer.

More than 4000 individual chemical substances of cigarette smoke have been identified, many of which are toxic, mutagenic, carcinogenic or pharmacologically active. The carcinogens may act at different stages of initiation and tumour promotion. The risk of lung cancer increases with the amount smoked and the risk increment roughly corresponds to the number of cigarettes smoked per day, i.e. 20 cigarettes per day

increase the risk 15-fold. Risk is also modified by the type of tobacco used, the duration of smoking, the degree of inhalation, the extent of passive smoking, and the age when starting smoking. The risk is several-fold higher when starting before the age of 20 than after 25. The risk falls exponentially after smoking cessation and is reduced by 50% after 5 years.

Current knowledge about smoking as the major cause of lung cancer is therefore more than sufficient to justify action from society. Consequently, the prevention of lung cancer should focus on preventing young people from starting smoking and to help smokers to quit. The basis of this work is health promotion and health education, which must be supported by societal actions to achieve smoke-free environments, a ban on tobacco advertising, regular increments of the tobacco price, and an age-limit for the sales of tobacco. All Nordic countries except Denmark now have some form of an anti-tobacco legislation. More efforts should also be reserved for smoking cessation, not only in primary health care but also in hospitals, so that patients with smoking-related diseases can be offered help to quit smoking.

The paper by Wersäll et al. is encouraging but it makes a population-based strategy to fight lung cancer and smoking even more motivated as a cross-sectional collaboration between politicians, health- and medical care, municipal agencies (school and environmental protection), non-governmental organizations, mass media, etc. Participation of the medical profession in this work is important because physicians possess knowledge about risk factors for cancer, and they can contribute to the design and evaluation of the program, as well as to its credibility. It is also necessary to establish supportive environments (e.g. smoke-free environments) that can facilitate lifestyle changes for the individual. Without such environments there is a risk that the actions become selective and instead may increase the differences in health between various population groups.

Lars-Erik Holm