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Cancer Incidence in the Province of Limburg, The Netherlands

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INTRODUCTION

THE IKL cancer registry in the province of Limburg was established in 1984 as part of the Comprehensive Cancer Centre, Limburg (Integraal Kankercentrum Limburg: IKL). Within the structure of the centre, the hospitals, the university of Limburg and the radiotherapeutic institute of Limburg are collaborating. The aim of the centre is the improvement of the care for cancer patients.

Besides cancer registration, the centre is involved in cancer research and treatment and coordinates regional activities on cancer prevention, screening, education and psychosocial care. The cancer registry provides important information on which several of these activities are based. The IKL cancer registry is

one of the nine regional cancer registries in The Netherlands. Together, these registries will comprise a nationwide cancer registry. After the IKL cancer registry started in 1984, it has gradually expanded in the following years. From 1986 onwards, all hospitals and pathology laboratories in the region have been participating in the registry. The registry publishes annual reports with respect to the registered malignancies [1-3]. Incidence rates have been published recently [4-6]. For this publication data for the period 1986-1988 are used.

METHODS OF CANCER REGISTRATION

The cancer registry receives lists of newly diagnosed cases on a regular basis from the seven pathology departments in the region. In addition, lists of hospitalised cancer patients are obtained from the medical records departments of the nine hospitals. Following this notification, the medical records of newly diagnosed patients (and tumours) are collected and the relevant information for the cancer registry is abstracted from the medical records by trained tumour registrars.

Tumour data are coded according to ICD-O. Completeness

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Fig. 1. Area of the IKL cancer registry in The Netherlands.

of records, data consistency and the possibility of duplicate records are continuously and extensively checked by computer programs. Due to privacy regulations death certificates cannot be used as an additional source of notification of cancer cases in The Netherlands.

AREA COVERED BY REGISTRY AND POPULATION DATA

The area of the IKL cancer registry consists of the southern and middle part of the province of Limburg, which is situated in the south-east of The Netherlands (Fig. 1).

The area of the IKL cancer registry comprises about 1355 km² and it includes rural, urban and rather heavily industrialised areas. Population data are provided on an annual basis by the Central Bureau of Statistics. On 1 January 1987 the population at risk consisted of 835 727 inhabitants, of which 414 558 were men and 421 169 were women. In the southern part of Limburg the population density was 927/km², whereas in the middle part this was 319/km². About 26% of the population lived in rural, 49% in suburbanised and 25% in urban municipalities.

Current industrial activities in the region include chemical, automobile and cement industry. From 1910 until 1975 coal mining was a very important source of employment in the region; the province of Limburg has been the only mining region in The Netherlands.

RESULTS

From 1986 to 1988 a total of 8409 new malignancies were recorded in the IKL cancer registry (4550 in males and 3859 in females), non-melanoma skin cancer and non-infiltrating malignancies excluded. Of these tumours, 2798 were diagnosed in 1986, 2743 in 1987 and 2868 in 1988. Of all these malignancies 88.4% had been histologically, 6.7% cytologically and 4.9% only clinically verified.

In Fig. 2, age-adjusted rates per 100 000 inhabitants (standardised according to the world standard population) are presented. In males, lung cancer is the most common cancer site with an annual incidence rate of 83.5 per 100 000 (world standard population), followed by cancer of the prostate (29.7), colon (19.8), stomach (16.8) and urinary bladder (11.1). In females, breast cancer is the most common malignancy with an incidence rate of 68.4 per 100 000, followed by cancer of the colon (17.2), corpus uteri (10.6), rectum (10.3), lung (9.2)

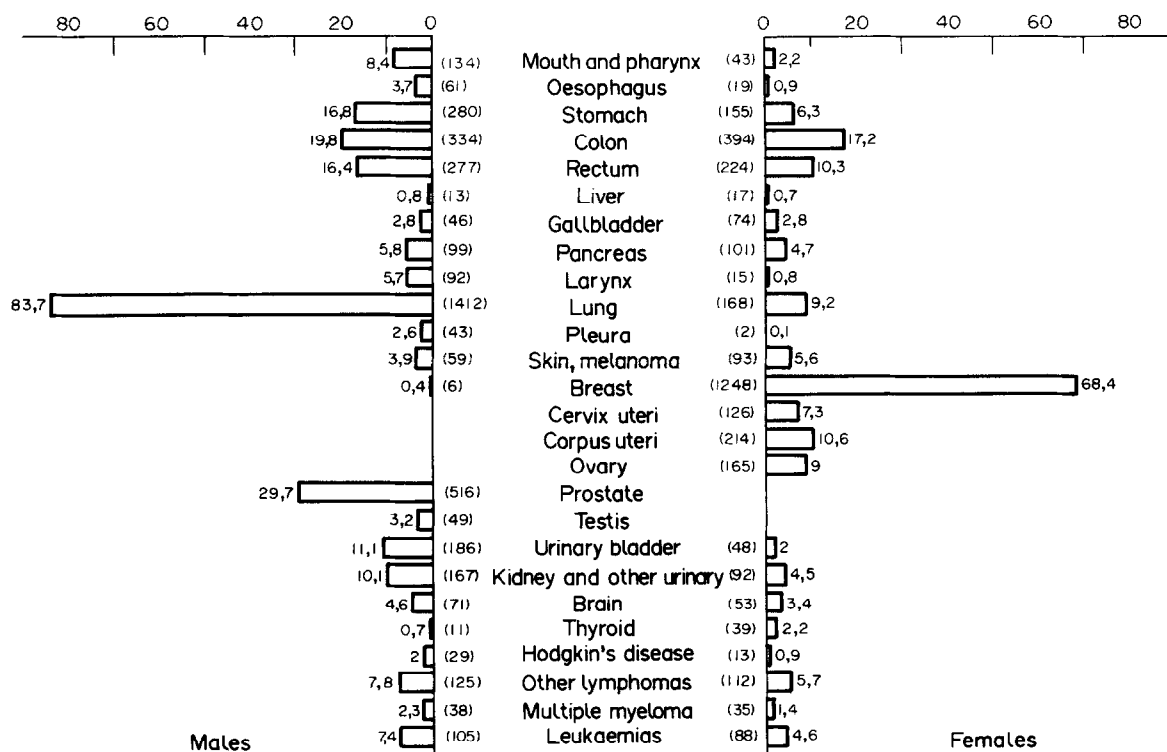


Fig. 2. Age-adjusted incidence rates (standardised according to the world standard population) per 100 000 for major cancer sites in males and females. IKL cancer registry, The Netherlands, 1986–1988. Number of registered cases is given in parenthesis.

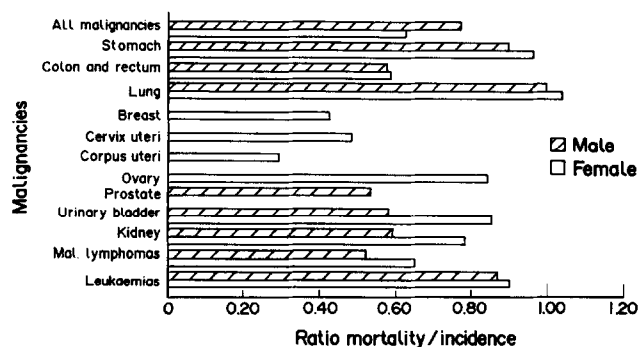


Fig. 3. Mortality : incidence ratio for common cancer sites. Incidence: IKL cancer registry, 1986–1988; Mortality: Central Bureau of Statistics 1986–1988.

and ovary (9.0). The world standardised rate for total cancer was 274.0 in males and 195.7 in females.

Mortality data of the IKL area for the years 1986–1988 were obtained from the mortality register of the Central Bureau of Statistics. In Fig. 3, the mortality : incidence ratios are presented for the most frequent malignancies. The mortality : incidence ratio for total cancer is 0.77 in males and 0.63 in females. Of the most frequent cancers only the mortality : incidence ratio for lung cancer in females is slightly higher than 1.

DISCUSSION

In this article incidence rates are presented from a cancer registry in The Netherlands that has been established only recently. Despite the relatively short time that has elapsed since the start, we have reason to believe that our registry is already rather complete. Notifications have been obtained on a regular basis from pathology laboratories and hospitals for several years. From 1986 onwards, all pathology laboratories and hospitals have participated in the cancer registry, resulting in a number of registered cases, which is rather constant for 1986, 1987 and 1988. The mortality : incidence ratio for total cancer in men and women and the fact that of the most frequent sites only the ratio for female lung cancer exceeds 1, indicate no substantial under reporting of cancer incidence. Finally, the completeness of the registration has been tested in a pilot study in which the registry data were compared against data on cancer patients in a computerised network of general practitioners in the area. Preliminary results suggest a completeness of 95% [7].

Overall, the incidence rates of the IKL cancer registry very closely correspond to the rates of the Eindhoven Cancer Registry in The Netherlands for the years 1983–1986 [5, 8, 9]. The latter registry has been in operation since 1975 and it is presumably complete [10]. However, the incidence rates are lower in the IKL area than those in the Eindhoven cancer registry for malignancies of the stomach (males and females), bladder (M, F) and ovary. The incidence rates are higher for malignancies of the lung (F), pleura (M) and primary site unknown (M). The general correspondence between the incidence rates is in accordance with the similarity of cancer mortality rates in both regions [5]. While the differences for most cancer sites are modest, the difference between the incidence rates of bladder cancer is striking. This however, can be attributed to difference in coding practices. In the IKL cancer registry non-infiltrating papillary bladder cancers are not coded as infiltrating, as opposed to the past practice in the Eindhoven cancer registry. If the non-infiltrating bladder cancers were regarded as infiltrating there

would be no difference in incidence rates for bladder cancer between the two regions [5]. In comparison with the remaining parts of The Netherlands, cancer mortality in males is 5% higher in the areas of the Eindhoven and IKL cancer registries, while for females there is no difference [5, 9]. The lung cancer incidence rate in men in the IKL cancer registry is high in comparison with other European cancer registries. Only the cancer registries in the United Kingdom and the cancer registry of Eindhoven have reported comparable rates [11, 12]. The incidence rate of lung cancer in females is rather low, which can be explained by the fact that cigarette smoking was not common among females in The Netherlands before 1970. Because of the increasing number of women that smoked cigarettes from 1970 onwards, it can be expected that the incidence of lung cancer in women will rise [13].

The incidence rate of pleura mesothelioma is rather high in the IKL area in comparison to the other cancer registries in Europe [11]. This might be due to the exposure of asbestos, which has been widely used as insulation in the chemical industry, one of the biggest employers in the region. The incidence of colorectal malignancies, breast and kidney cancer are high. These malignancies can mostly be attributed to lifestyle factors, and further studies are indicated to explain these differences.

In a recent publication the cancer incidence in the countries of the European Community has been estimated [14]. The incidence rates were calculated using the mortality : incidence ratio of cancer registries in the Nordic countries, Scotland and some French regions. The estimated incidence rate for total cancer for The Netherlands is about 10% higher than the recorded incidence rate for the IKL cancer registry. When non-infiltrating bladder cancer was included, the estimated number of all malignancies was 5% higher in males and 9% higher in females. These figures are comparable with the results of the Eindhoven cancer registry. In Scotland the estimated number of cases was 5.2% and 7.9% higher, for males and females, respectively, than the actually observed number [14]. It is therefore possible that the expected number of incident malignant tumours is overestimated by Jensen *et al.* for The Netherlands. This can be investigated when the data of the national Dutch cancer registry are available. In this publication, incidence rates were presented of a recently established cancer registry in The Netherlands. They provide further insight into the pattern of cancer incidence in Europe.

Apart from the estimation of cancer incidence, the registry is involved in aetiological cancer research [15, 16]. In the IKL cancer registry a protocol was developed for the record linkage between the Dutch cancer registry and cohort studies [17].

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Clinical Oncology: Case Presentations from Oncology Centres—2. Carcinoid of the Larynx

Paul J. Govaerts, Paul van den Broek, Frans H.M. Corstens
and Herman M. Peters

INTRODUCTION

MALIGNANT TUMOURS of the larynx are usually squamous cell carcinomas although other malignant tumours occur. In recent years it has become apparent that neuroendocrine tumours of the larynx are not so uncommon and that the finding of an undifferentiated carcinoma should raise suspicion of a neuroendocrine tumour.

CASE PRESENTATION

The patient, a 61-year-old female, consulted a pulmonologist and an otolaryngologist in May 1990 for a cough of six months' duration which was getting progressively worse. She complained of an irritant in the throat and had lost 7 kg in weight. She was a heavy smoker. Chest examination revealed no abnormalities and a chest X-ray showed hyperinflated lungs. Bronchoscopy revealed signs of a chronic bronchitis. The otolaryngologist found oedema of both vocal cords and a polypoid lesion on the left arytenoid, with a raspberry appearance, resembling an haemangioma. In September 1990 a microlaryngoscopy with stripping of the oedema of the vocal cords and partial excision of the lesion was performed. Histopathological examination unexpectedly revealed a poorly differentiated 'non-small cell' malign neoplasm, probably a squamous carcinoma. Conse-

quently, tomography and computed tomography (CT) of the larynx were performed, localising a swelling in the left dorsal supraglottic region, expanding to the retro- and parapharyngeal space into the floor of the mouth. The patient was transferred to the University Hospital for staging and further treatment. Revision of the histological sections raised suspicion of a neuroendocrine tumour and this was confirmed by immunohistochemical staining, which was positive for S-100 and calcitonin and negative for carcinoembryonic antigen (CEA) (Figs 1–3). A diagnosis of atypical carcinoid was made. The tumour was totally excised by microlaryngoscopy and the wound bed was treated

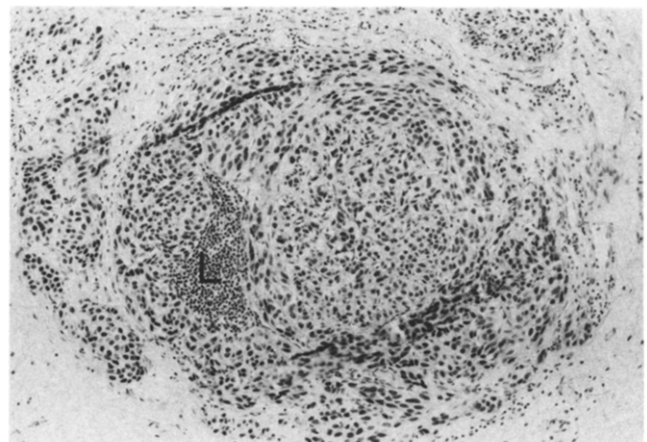


Fig. 1. The tumour consists of multiple nests of infiltrating intermediate sized cells. Note lymphocytic infiltrate (L).

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