

Analysis of Cancer Cases in Konya

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ABSTRACT

This study has been carried out to estimate the number of cancer patients and the distribution of cancer types in Konya for planning of the prevention activities and radiotherapy equipment more cost effectively. The cancer cases were analysed by reviewing the records of all pathology centres in the province of Konya to estimate the incidence and histological distribution of tumors and 1523 cancer cases were found to be diagnosed in a period of one year. Overall cancer incidence was higher in males than in females (Age Standardised incidence rates of 121.1 and 94.7 per 100 .000, respectively). Non-melanoma skin cancer was the most common cancer for both gender. While bladder, lung, colorectal and stomach cancers were the most frequent cancers in men; breast, colorectal, stomach cancers were the leading tumors in women. These estimates in the present study reflect the current burden of cancer in the period of instructing a new radiotherapy department in Konya.

Key Words: Cancer, Epidemiology, Turkey

ÖZET

Konya'daki Kanser Olgularının Analizi

Bu çalışma kanserden korunmaya yönelik aktivitelerin ve kurulacak radyoterapi cihazlarının planlanabilmesi için Konya'daki kanser hastalarının sayısını ve kanser tiplerinin dağılımını belirlemek için yapılmıştır. Tümörlerin insidansı ve histolojik dağılımını belirlemek için Konya ilindeki tüm patoloji merkezlerinin kayıtları incelenerek kanser vakaları analiz edilmiştir ve 1 yıl içinde 1523 kanser vakasına tanı konduğu saptanmıştır. Kanser insidansı erkeklerde kadınlardan daha yüksek bulundu (Yaşa göre düzeltilmiş insidans hızları sırasıyla 100 000'de 121.1 ve 94.7). Her iki cinste en sık rastlanan kanser, melanoma dışı cilt kanseriydi. Erkeklerde mesane, akciğer, kolorektal ve mide; kadınlarda ise meme, kolorektal, mide kanserleri en sık rastlanan kanser tipleriydi. Bu çalışmada saptanan bu bulgular Konya'da yeni radyoterapi departmanı kurulması aşamasında kanser olgularının yaygınlığını yansıtabilir.

Anahtar Kelimeler: Kanser, Epidemiyoloji, Türkiye

INTRODUCTION

Cancer is an important public health concern. There is need to determine the cancer incidence and most frequent cancer types in developing countries for better planning and cost-effective use of their limited professional and financial resources toward the control of the most frequent types of cancer within that region (1). In Turkey, active registry system has been initiated in 10 provinces in 1992 by the Ministry of Health and the Turkish Association on Cancer Control. Recently the first results of Izmir, the third largest province in Turkey, Cancer Registry has been published and age-standardised rates of 157.5 and 94 per hundred thousand have been reported for male and female respectively (2).

The province of Konya is in the central region of Turkey. The population is 1.7 million (State Institute of Statistics, 1998). So far sufficient data on cancer incidence in Konya has not been available. Although Konya is the 5th largest province in Turkey there is no radiotherapy facility. The treatment of cancer cases remains as a challenge. The number of radiotherapy centres has been increasing in Turkey. There are 45 radiotherapy centres with 400 radiation oncologists and 80 medical physicists in Turkey at the present (3). In 1997 instruction of the department of radiotherapy at Selcuk University has been planned. However, technical equipment has not been established yet because of the difficulty in getting the financial support. This study has been carried out to estimate the number of cancer patients and to investigate the distribution of cancer types in Konya for planning of the prevention activities and radiotherapy equipment more cost effectively. Since population of Konya, located in Central Anatolia, has different lifestyle compared with Izmir population, Izmir data has not been used for this purpose.

MATERIALS AND METHODS

Since a population based active cancer registry system is not available, pathology records of all pathology laboratories in Konya have been used in order to estimate cancer incidence. Every pathology laboratory (8 in total) in the city was contacted to establish if they could supply information about cancer patients diagnosed in 1998. Two laborato-

ries including the largest one, had computerized pathology records and other 6 laboratories used paper-based records. The paper-based records were reviewed manually by one of the researchers.

While the records of 313 (20.5%) patients were established from private pathology centres, 748 (49.1%) and 462 cases (30.3%) were reached through university and state hospital (30.3%) records, respectively. Classification of tumours has been performed using the International Classification of Diseases: Oncology, second edition (ICD-O-2) of the World Health Organization (WHO) (4). Name, age, gender, organ from which the disease originated and pathological diagnosis were entered to the computer. Data were analysed using SPSS for Windows (version 10.0). Duplicate cases were detected and corrected. If there was a match in the initials, then the age, sex and diagnosis are compared. Crude incidence was calculated using population of Konya in 1998, obtained from State Institute of Statistics. The age-adjusted incidence rates were calculated using the world population as standard. Chi-Square test was used to assess the difference between men and women as regard to percentages of cancer sites.

RESULTS

Turkish population data from government statistical institute revealed that 1734959 cases were registered in 1998, of which 865201 (50.2%) were male, 869758 (49.8%) were women. Analysis of the records of patients revealed that 1523 cases had the biopsy proven diagnosis of cancer, of which 820 cases (53.8%) were men and 703 cases (46.2%) were women. Table 1 and 2 show the most common 10 cancers with their percentages within whole group, crude and age-standardised incidence rates (ASR) for males and females, respectively. The age-standardised incidence rates for all cancers combined were 121.1 and 94.7 per hundred thousand for males and females, respectively.

Non-melanoma skin cancer was found to be most frequent type of cancer for males (ASR: 22.7) and females (ASR: 21.5). In males, bladder (ASR: 13.7) and lung cancers (ASR: 13.6) were the most frequently recorded malignancy following skin cancer. Colorectal cancer, stomach cancer, prostate

Table 1. Number of cancer cases and incidence rates by site in Konya for 1998 (males) performed by a direct method using the world standard population

Site	total	Rf %	Crude	ASR
Skin	152	18.5	17.5	22.7
Lung, bronchus	90	11	10.4	13.6
Bladder	89	11	10.2	13.7
Colorectal	82	10	9.5	11.8
Stomach	75	9.5	8.6	11.3
Prostate	58	7	6.7	9.6
Larynx	44	5.5	5	6.3
CNS	34	4	3.9	4.9
Lymphoma	30	3.6	3.5	4

Table 2. Number of cancer cases and incidence rates by site and age groups in Konya for 1998 (women) performed by a direct method using the world standard population

Site	total	Rf %	Crude	ASR
Skin	151	21.4	16.6	21.5
Breast	131	18.6	14.6	17
Colorectal	52	7.4	5.6	6.95
stomach	43	6.1	4.9	6.2
CNS	43	6.1	4.9	5.6
Corpus uteri	29	4.1	3.3	4.1
Lung, bronchus	26	3.7	2.8	3.6
ovary	25	3.5	2.8	3.3
bladder	22	3.1	2.5	2.9
Thyroid	20	2.8	2.3	2.5

cancer and larynx cancers were the other frequently seen cancer types with the ASRs of 11.8, 11.3, 9.6, 6.3 respectively. In females, breast cancer (ASR: 17) was found to be most frequent cancer type following skin cancer. Colorectal cancer, stomach cancer and central nervous system and corpus uteri tumors were the most frequent cancers

with ASRs of 6.9, 6.2, 5.6, 4.1 respectively in the female group.

The percentages of lung, stomach, bladder, laryngeal cancers were higher in men than in women and that was statistically significant ($p < 0.05$). Breast and thyroid tumors and malign melanoma were significantly higher in women than in men ($p < 0.05$).

DISCUSSION

In the present study, the age adjusted incidence rates of 121.1 and 94.8 per hundred thousand population for men and women respectively, are comparable to Izmir study which is the first accurate incidence data from Turkey (2). When compared to the European countries and USA, much lower incidence rates were observed in Konya and Izmir (2,5,6). Generally, cancer rates are known to be higher in industrialised countries than in developing countries.

The use of pathology records as a method is a limitation of our study since pathological reports do not include the cancer patients who never had a biopsy, or patients with leukemias and multiple myeloma. Furthermore, some residents of Konya might have been diagnosed in the other institutions with radiotherapy facility in the capital city. In addition, the study covers relatively short period of one year. As a consequence of these factors, there is some under-ascertainment in this analysis. Nevertheless, an earlier attempt to estimate the cancer incidence by a survey of main pathology centres in Turkey, indicated ASR of 49 per hundred thousand population in 1977 which is quite low (7). In the present study reviewing all pathology records improved the reliability of our results.

Non-melanoma skin cancer is the most common cancer in both gender in Konya. Surprisingly, lower skin incidence rate has been reported in Izmir compared to Konya (2). This might be due to insufficient capture of cases. Since skin cancers may be treated within outpatient clinics often without histological confirmation there might be underestimation of non-melanoma skin cancer incidence (8, 9).

In men, lung and bladder were the second leading cancer sites following skin cancer. The incidence rate of lung cancer in Konya was much lower than in Izmir. Fidaner et al. (2) reported that high rate of lung cancer in Izmir might be explained by the fact that, tobacco is one of the main agricultural products and smoking rate is very high in some areas. In some Asian countries, reported rates varies between 11-30 (6,10,11). In Europe lung cancer is the most common cancer, with incidence rates varying from 44.3 in Northern Europe to 69.7 in Eastern Europe (12). In women, lung cancer incidence rate is low in Konya similar to Izmir study.

However in European countries, lung cancer incidence is quite high in women with similar rates to men (12).

Another cancer site as common as lung in men is bladder in this study. Smoking and certain chemicals, such as aromatic amines, are the two major recognized risk factors for bladder cancer (13). Bladder cancer frequency in Konya is slightly higher than in Izmir. In Konya besides high rates of smoking (14), several chemical industries might be responsible for this high incidence rate. In Europe higher bladder incidence rates have been reported (2,15).

The incidences of colorectal cancers were high in men and women in Konya. High consumption of meat and fat appears to be strong risk factor in Konya. Mediterranean diet which is rich of vegetable and olive oil may explain the lower rates observed in Izmir (2, 16-18). The highest rates in the world are in North America, Australia and Europe. Rates in Africa and Asia are low, but are increasing in countries adopting western-style dietary habits (18,19).

Stomach cancer is among the most common tumors in the present study. Incidence rate is higher than in Izmir. This reflects the preventive role of Mediterranean diet in Izmir (2). Although prevalence of *Helicobacter pylori* infection in Turkey has been reported to be as high as 85% (20), incidence rates of stomach cancer in Konya and Izmir are lower than European countries (15). Other Western Asian countries have large range of incidence rates between 1.8 and 26 per hundred thousand population (15).

Higher incidence rate of prostate cancer in Konya compared to Izmir, suggests the protective role of less fatty diet (21). In the world, the highest rates were found in the United States, Canada and Scandinavia. The rates found in our study and Izmir study are compatible with the low rates observed in China and other Asian countries (21).

Breast cancer was the most frequent cancer of women, in Konya, accounting 18% of female cancers. The age-standardised rate in this study was relatively similar to Izmir and considerably less than European countries (22). Higher incidence rates in several European countries is in part relat-

ed to screening programmes introduced in the late 1980s (22).

The incidence of cervical cancer is lower than in Izmir (2) and European countries with the lowest value of 3.58 in Luxembourg and highest rate of 31.5 in Rumenia (15). Low incidence rate of cervical cancer in Turkey is similar to the rates reported in Muslim countries (23). This might be attributed to different sexual and reproductive factors and the oncogenic subtypes of human papilloma virus, observed in different populations.

Since province of Konya does not yet have an active cancer registry, the present study might be used to estimate the current burden of cancer. The high incidences of tobacco-related and gastrointestinal cancers were the most prominent feature of the cancer distribution in Konya. This study reflects the effect of different life styles on cancer incidence since statistics from Konya showed some differences from Izmir data. There is need for preventive measures like implementing educational programmes regarding hazards of smoking and promotion of consuming low calorie diet rich of vegetables and fruit. Successful cancer prevention strategies in the European Community proved their effectiveness with decreasing incidence and mortality rates of lifestyle dependent tumours (19,24). Furthermore, determination of the number of cancer cases and distribution of histological diagnosis is very important for better planning of oncology centres, especially radiotherapy departments with high cost. In the light of this study, we planned to establish 2 linear accelerators and one brachytherapy machines, assuming that 60 % of cancer patients will need radiotherapy.

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