Brief communication

INCIDENCE OF THYROID CANCER IN GOLESTAN PROVINCE OF IRAN: SOME INITIAL OBSERVATIONS

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ABSTRACT

Objectives: The incidence of thyroid cancer is increasing in several countries. The main aim of this study was to find and describe province-specific estimates of incidence in males and females by age groups for thyroid cancer.

Methodology: The data used in this study were collected from a cancer registry that was established by Health Deputy of Golestan province for a period of one year (2004), in different age groups. Thyroid cancer data was identified and collected through the eighteen Pathology Laboratory centers (where males and female populations is referred) in Golestan province.

Results: A total of 348 females and 409 males cases with cancer representing all sites were identified during the study period. It included seventeen females and five male thyroid cancer patients. In female's thyroid cancer, there were twelve papillary carcinoma (70.6%), two medullary carcinoma, one carcinoma anaplastic and one carcinoma (5.9%). In male's, there were two papillary carcinoma (40%) and one follicular carcinoma. The incidence of thyroid cancer in 70-79 age groups for females and males was the highest and lowest in age group 10-19 years' in females and 30-39 years in males.

Conclusion: The incidence of thyroid cancer is higher in females when compared with males as per this one year study. However since this is just one year data, it needs to be studied further to confirm these findings.

KEY WORDS: Thyroid, Cancer, Incidence.

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INTRODUCTION

Cancer is becoming a leading cause of death in many countries of the world. In 1984, 5.8 million new cancer cases was reported from developing countries.[1] Many studies demonstrate that cancer incidence among different people are heterogeneous. Thyroid carcinoma (TC) is a relatively rare tumor, but it represents the most frequent form of cancer of the endocrine glands. It represents 1% of human neoplasias and its annual incidence is estimated worldwide from 0.5 to 10/100,000 subjects in the world population.[2]

The annual incidence of thyroid cancer varies considerably in different registries. High

incidence rates in Hawaii, Iceland and Israel have been known for some years. For the most recent data, female Hawaiians, Icelanders, Israeli Jews and Austrian Tyrolese have rates in the range of 8.5 – 19.4 per 100,000.[3] The highest incidence occurs in Iceland, followed by Austria and Finland, while relatively low incidence characterizes the UK, Netherlands and Denmark.[4] While the incidence of many head and neck cancers in the United States is decreasing,[5] a number of registries have reported that the incidence of thyroid cancer is increasing.[6-11] Some investigators have attributed the increase to environmental radiation,[9] while others have found no obvious source.[7] The incidence of thyroid cancer is increasing in some European countries, USA and Canada.[12-14]

The main aim of this study was to find out and describe province-specific estimates of incidence by age groups for thyroid cancer in the year 2004.

METHODOLOGY

The data used in this study was collected from a cancer registry that was established by Health Deputy of Golestan province in Iran for a period of one year (2004). Golestan province is located in north of Iran (South East of Caspian Sea). The collected data included population distribution by gender and age, divided into ten-year intervals. The age distribution was collected according to the following age strata: 0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79 and 80-85 above. Different cancer data was identified and collected through the 18 Pathology Laboratory centers (where males and female populations is referred). Using a structured questionnaire, trained personnel conducted personal interviews to collect information on thyroid cancer in the Golestan province.

The newly diagnosed cases were detected by histopathological, cytological examinations. These were then sent to the Cancer Registry Office of the province and to the registry unit in the Health Deputy. Age-specific rates, annual age-adjusted rates (ASRs) per 100,000 person-years were calculated using the direct methods of standardization to the world population. The data was summarized in a data sheet and coded using the ICD-10. The data were recorded at different levels to ensure correct registration. This has been done by iarccrgtools-203 software.

RESULTS

A total of 348 females and 409 males cases with cancer from all sites were identified during the study period. The cases detected included seventeen (4.9%) females and five (1.2%) males thyroid cancer. In females' thyroid cancer, there were twelve papillary carcinoma (70.6%), two medullary carcinoma (17.6%), one carcinoma anaplastic (5.9%) and one carcinoma (5.9%). In male's thyroid cancer, there were two papillary carcinoma (40%) and one follicular carcinoma (20%). The incidence for papillary carcinoma was the highest in Golestan province in females 70.6% and in males 40%.

The results from Golestan province Cancer Registry for the year 2004 show that cancer of thyroid is the sixth and fifth common cancer in women and men respectively. The Annual Specific Rate (ASR) is 2.65 and 0.75 per 100,000 in females and males respectively. The highest thyroid cancer incidence among females and males in Golestan province was in age group 70-79 (ASR: 37.19/100,000) and (ASR: 11.83/100,000) respectively. The thyroid cancer incidence according to age specific is shown in Table-I.

DISCUSSION

The results of this study show that the incidence of thyroid cancer in Golestan province has increased over the past few years if compared with an earlier study.[15] Recent rise in incidence, especially among younger women, suggest that overall incidence may continue to increase for the foreseeable future. Golestan province has relatively low prevalence of thyroid cancer when compared with other countries.[16] For example, age-standardized incidence rates are higher in males and females

Table-I: Thyroid cancer incidence among males and female in Golestan province in 2004

	Male		*Female*	
Ages (year)	*persons*	*Incidence rates (per 100000)*	*persons*	*Incidence rates (per 100000)*
0-9	1175607	-*	154048	-*
10-19	220918	-	236028	1.7
20-29	131692	-	157238	5.18
30-39	101533	3.95	111881	7.18
40-49	75272	6.61	65608	6.69
50-59	32150	-	49437	-
60-69	40686	-	21855	14.69
70-79	18706	11.83	12523	37.19
80-85+	2996	-	4741	34.21

-* : No cancer incidence

in Finland and the USA.[15] There is a striking increase in the female incidence rates, which are almost twice the incidence in male. Thyroid cancer incidence in Golestan province among both females and males in the year 2004 continued to show a significant increase when compared with the years 1996-2000.[15]

Analysis of our data by age-specific incidence shows that the highest rates were observed in the age of 70-79 years for females and males. Furthermore, age-specific analysis by 10-year age groups identified that thyroid cancer incidence among young males and females increased in the year 2004 (1.22/100000 for males and 2.65/100000 for females) when compared with the years 1996-2000 in Iran (0.62/ 100,000 for males and 1.59/100,000 for females).[16]

There are several possible reasons for the increase in thyroid cancer incidence. The only established risk factor for thyroid cancer in humans, besides age and gender, is ionizing radiation. Sex hormones, iodine deficiency and other factors have been suggested as risk factors for thyroid cancer, but the findings are inconsistent.[17-21] The cause of this cancer is unknown. It seems that an environmental risk factor in Golestan province, such as radiation exposure or iodine supplementation, can explain the slow increase in thyroid cancer incidence. The findings from Cardis et al.,[22] however, suggest that diets deficient in stable iodine potentiate the risk of radiation-induced thyroid cancer and that continued use of dietary supplements containing potassium iodide substantially reduces the risk of radiation-induced thyroid cancer, even if taken for many months or years after the exposure has occurred.

Iran was considered as an endemic iodine deficient area until recently. Iodinization of salts had been started about seventeen years ago. A recent study from France suggest that evolution in clinical practice has been a major factor responsible for the increased thyroid cancer incidence.[23] These include improvements in diagnostic practice, with increased use of more sophisticated diagnostic methods such as fine needle biopsy of the thyroid and radio-isotope thyroid scanning, change in monitoring of benign thyroid problems, with broader indications for removal of solitary nodules, and the increase in 'incidental' diagnosis and the discovery of less aggressive tumors. We believe that introduction and implementation of national evidence-based guidelines for the management of thyroid cancer should result in a greater improvement in survival. Additional research on the risk factors for thyroid cancer (Geographic, environmental and ethnic) is needed to explain the incidence of thyroid cancer.

Limitations of this study: This study however has some limitations as it is based just on one year data. As such further studies are needed to confirm these initial observations.

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