



Incidence Rate of Top Ten Cancers among Iraqi in 2023

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Abstract

Objective(s): The present study aims at determining the incidence rate of the top ten cancers among Iraqis in 2023.

Methodology: A descriptive, prospective, study is carried throughout the present study to determine the incidence rate of top ten cancers among Iraqis in 2023. convenient sample of (43,062) reported case is included in the study. Such sample is recruited from the records of the Iraqi Council of Cancer Registry Center at the Ministry of Health in Iraq. Incidence rate is computed for each cancer and the reported cases' demographic characteristics are gathered through the use of demographic data sheet that include age, gender and residency of each reported case.

Results: Analysis of the results depicts that indicate that the incidence rate of cancer is increasing with the age of (70-79) year old. Males develop more bronchus and lung cancer cases and in contrast females develop thyroid cancer cases more than others. The governorate of Erbil has the highest incidence rate of cancers in Iraq 2023.

Conclusion: The study concludes that cancer cases are increasing and so on the incidence rates among Iraqis during the year of 2023 as far as the age is increasing.

Recommendations: The study recommends that the increasing trend of cancer requires further epidemiological studies to describe incidence by other socio-demographic characteristics in Iraq. Further research, in this area, is essential for understanding the causes underlying these trends and their impact more thoroughly.

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Introduction

Cancer is a major societal, public health, and economic problem in the 21st century, responsible for almost one in six deaths (16.8%) and one in four deaths (22.8%) from non-communicable diseases (NCDs) worldwide. The disease causes three in 10 global premature deaths from NCDs (30.3% in those aged 30–69 years), and it is among the three leading causes of death in this age group in 177 of 183 countries ^[1].

In addition to being an important barrier to increasing life expectancy, cancer is associated with substantial societal and macroeconomic costs that vary in degree across cancer types, geography, and gender ^[2].

One recent study illustrated the profound impact of disproportional cancer mortality in women: an estimated one million child became maternal orphans in 2020 because their mother died from cancer in that year, with close to one half of these orphans the result of maternal deaths from either female breast or cervical cancer ^[3].

The most common cancers worldwide are lung and female breast cancer, with colorectal, prostate, and stomach cancers also ranking among the top five, according to global data from the World Health Organization (WHO). Other common cancers globally include skin (non-melanoma), liver, and cervix, though specific rankings and prevalence vary by region and population ^[4]. Based on the early stated evidence, the present study ought to explore the incidence rate of the top ten cancers among Iraqis in 2023.

Methodology

A descriptive, prospective, design is carried throughout the present study to determine the incidence rate of top ten cancers among Iraqis in 2023. Convenient sample of (43,062) reported case is included in the study. Such sample is recruited from the records of the Iraqi Council of Cancer

Registry Center at the Ministry of Health in Iraq. The demographic characteristics are gathered through the use of demographic data sheet that include age, gender and place of residency for each reported case. Incidence rate is calculated through the use of the following formula: Incidence Rate = Number of onsets/ \sum person-time^[5].

Results

Table 1: Distribution of Cancer Cases among Iraqis by Gender and Age Group 2023

Age Group	Male No.	Female %	Total No.	ASR%
0-4	388	2.2	344	1.4
5-9	333	1.8	250	1.0
10-14	341	1.9	266	1.1
15-19	337	1.9	362	1.4
20-24	365	2.0	467	1.9
25-29	397	2.2	690	2.8
30-34	563	3.1	1,183	4.7
35-39	656	3.6	1,481	5.9
40-44	853	4.7	2,163	8.6
45-49	1,139	6.3	2,565	10.3
50-54	1,634	9.1	2,953	11.8
55-59	1,791	9.9	2,842	11.4
60-64	1,810	10.0	2,596	10.4
65-69	2,269	12.6	2,307	9.2
70-74	2,332	12.9	2,135	8.5
75-79	1,410	7.8	1,162	4.6
80+	1,423	7.9	1,255	5.0
Total	18,041	100	25,021	100

Results, out of this table, depict that middle age adults of (45-64) year old and old age of (65->80) year old have developed cancers more than others. Female cases are developing cancers more than males. Cases with age of (72-74) year old

Table 2: Age-Specific Incidence Rate of Cancer Cases among Iraqi 2023

Age Group	Incidence Rate
0-4	11.5
0-9	9.9
10-14	11.5
15-19	15.1
20-24	20.7
25-29	33.7
30-34	60.1
35-39	85.2
40-44	130.1
45-49	214.4
50-54	407.1
55-59	396.9
60-64	535.9
65-69	866.7
70-74	1319.7
75-79	1312.6
80+	992.2

Results, out of this table, indicate that the incidence rate of cancer is increasing with the age of (70-79) year old.

Table 3: Distribution of Cancer Cases among Iraqis by Governorates 2023

Governorate	Male No.	Male %	Male IR	Female No.	Female %	Female IR	Total No.	Total %	Total IR
Erbil	1,366	7.6	128.4	1,664	6.7	159.4	3,030	7.0	143.8
Karbala	698	3.9	99.9	1,039	4.2	151.4	1,737	4.0	125.4
Al-Najaf	869	4.8	103.6	1,138	4.5	136.5	2,007	4.7	120.0
Baghdad	4,264	23.6	90.7	6,807	27.2	149.1	11,071	25.7	119.5
Al-Sulaimaniyah	1,305	7.2	106.2	1,491	6.0	121.4	2,796	6.5	113.8
Al-Basrah	1,504	8.3	90.6	1,991	8.0	121.1	3,495	8.1	105.7
Babylon	891	4.9	75.1	1,254	5.0	108.0	2,145	5.0	91.4
Diyala	630	3.5	68.1	1,042	4.2	115.0	1,672	3.9	91.3
Wasit	597	3.3	75.5	826	3.3	106.5	1,423	3.3	90.8
Al-Qadisiyah	596	3.3	80.6	724	2.9	99.5	1,320	3.1	90.0
Misan	497	2.8	78.9	591	2.4	93.1	1,088	2.5	86.0
Al-Muthana	368	2.0	79.1	415	1.7	90.1	783	1.8	84.6
Duhok	558	3.1	75.8	628	2.5	85.7	1,186	2.8	80.7
Al-Anbar	631	3.5	61.0	883	3.5	90.2	1,514	3.5	75.2
Nineveh	1,280	7.1	59.1	1,778	7.1	85.8	3,058	7.1	72.1
Salah Al-Deen	491	2.7	53.6	813	3.2	90.6	1,304	3.0	71.9
ThiQar	773	4.3	64.7	907	3.6	76.5	1,680	3.9	70.6
Kirkuk	459	2.5	50.2	677	2.7	75.1	1,136	2.6	62.6

Results, out of this table, reveal that residents of Baghdad, Al-Basrah, Erbil, Al-Sulaimaniyah and Nineveh Governorates have developed more cancers cases than other governorates respectively. The governorate of erbil has the highest incidence rate of cancer among all other governorates.

Table 4: Top Ten Cancers among Iraqis, 2023

Site	Male	Female	Total	Percent
Breast	1,418	708	849	20.5
Colorectal	1,606	1,502	3,108	7.2
Bronchus & Lung	2,129	891	3,020	7.0
Thyroid	558	2,265	2,823	6.6
Brain, CNS	1,327	1,491	2,818	6.5
Bladder	1,602	416	2,018	4.7
Leukemia	1,014	873	1,887	4.4
Prostate	1,656	—	1,656	3.8
Skin	831	697	1,528	3.5
Non-Hodgkin Lymphoma	807	635	1,442	3.3

Results, out of this table, show that males and females develop Bronchus and Lung cancer cases more than other cases and in contrast females develop thyroid cancer cases more than other cases. The highest incidence rate is accounted for breast cancer.

Discussion

There are (43,062) newly diagnosed cancer cases reported among Iraqi nationality in 2023, overall cancer among females are more than males; it affected (18,041) (41.9%) males and (25,021) (58.1%) females. The crude incidence rates (CIR) of all cancers founded to be 99.4/100,000. while overall age standardized rate (ASR) is 171.6/100,000.

The crude incidence rates (CIR) among males are 82.4/100,000 and 116.7/100,000 among females. While age-standardized rate (ASR) is 156.4/100,000 among males and 186.8/100,000 among females.

The total number of new cases of cancer during the year 2023 was 43,062. The age standardized incidence rate was 171.6 /100,000P.

Related to the governorates. The highest crude incidence rate in Iraq was recorded in Erbil (143.8/100,000 P). It also recorded the highest crude incidence rate among males and females (128.4/100,000 MP and 159.4/100,000 FP) respectively. The lowest crude incidence rate in Iraq is recorded in Kirkuk (62.6/100,000 P).

An epidemiological study assesses the estimates of cancer incidence by analysing the population-based cancer registry between 2013 and 2019, in both the Erbil and Duhok governorates. A retrospective analysis is performed on data retrieved from the Medical Statistics Department at the Ministry of Health, Kurdistan Regional Government (KRG). The study depicts that the total number of female cancer

patients is higher in both governorates, and the total incidence of patients with cancer increased in Erbil and Duhok, from 73 to 174 patients/100,000 individuals for women, and 36 to 85 patients/ 100,000 individuals for men. Analysis indicated that the percentage of patients with cancer is projected to increase by >2x in the current decade, from 3,457 cases to 4,547 and 4,449 cases in the Erbil governorate; and from 1,365 to 2,633 and 2,737 cases in 2028 based on LSTM and bi-LTSM analysis in the Duhok governorate. Lung cancer (LC) and female breast cancer are the most prominent types of cancers diagnosed since 2013 in both the Erbil and Duhok governorates [6].

The trend of the crude incidence rate of new cases of cancer increased from the year 1976 (31.5/100,000 P) to the year 2023 (99.4 /100,000 P).

The top ten cancers in both genders are breast (20.5%, 20.4/100,000P), colorectal (7.2%, 7.2/100,000 P), lung (7.0%, 7.0/100,000 P), Thyroid (6.6%, 6.5/100,000 P), brain, central nervous system tumor (CNS) (6.5%, 6.5/100,000 P), Bladder (4.7 %, 4.7 /100,000 P), Leukemia (4.4 %, 4.4 /100,000 P), prostate (3.8 %, 7.6 /100,000 MP), Skin, other (3.5 %, 3.5 /100,000 P) and Non-Hodgkin

Lymphoma (3.3 %, 3.3 /100,000 P).

An epidemiological study is carried out at Al-Yarmook Teaching Hospital, laboratories department, Baghdad- Iraq; One hundred thirty three Iraqi patients have been recorded

during period May 2014 until December 2014. The current study has demonstrated that five different types of the following cancers: Breast cancer, Skin cancer, colorectal cancer, Bladder cancer and endometrial cancer are enrolled in this study. Comparison among each type of cancer was regarded in age, sex and number. The majority results in cancer epidemiology for the present study are fluctuated between the skin and breast cancer, which showed (33.1%) and this represents the prevalence of cancer among all the other types of cancers. In case of other types, the result has showed that (16.5 %), (13.5%) and (3.7 %) for endometrial cancer, bladder cancer and colorectal cancer, respectively [7]. The top ten cancers in males are lung (11.8 %, 9.7 /100,000 MP), Prostate (9.2%, 7.6 /100,000 MP), Colorectal (8.9 %, 7.3 /100,000 MP), Bladder (8.9 %, 7.3 /100,000 MP), brain, central nervous system tumor (CNS) (7.4 %, 6.1/100,000 MP), leukemia (5.6 %, 4.6 /100,000 MP), kidney (4.7 %, 3.9 /100,000 MP), Skin, other (4.6 %, 3.8 /100,000 MP), Non-Hodgkin Lymphoma (4.5 %, 3.7/100,000 MP), and Pancreas (3.7 %, 3.0 /100,000 MP).

The top ten cancers in females are breast (34.8 %, 40.6 /100,000 FP), thyroid (9.1 %, 10.6 /100,000 FP), colorectal (6.0 %, 7.0 /100,000 FP), brain, central nervous system tumor (CNS) (6.0 %, 7.0 /100,000 FP), Ovary (4.1 %, 4.8 /100,000 FP), Lung (3.6 %, 4.2 /100,000 FP), leukemia (3.5 %, 4.1 /100,000FP), uterus unspecified (3.2 %, 3.7 /100,000 FP), Skin, other (2.8 %, 3.3 /100,000 FP), and Non-Hodgkin Lymphoma (2.5 %, 3.0 /100,000 FP).

The total number of cancers in children (0-14) years was (1922) out of the (43,062) representing (4.5 %) of total cases of cancer of all age groups, with crude incidence rate (11/100,000) children (0–14 year P). Related to the age group, the lowest crude incidence rate is (5-9) years (9.9 /100,000). The highest crude incidence rate of cancer among children was leukemia (3.1 /100,000 children 0-14) years.

A descriptive, prospective, design is carried throughout the present study to determine the incidence rate of top ten cancers among children 0-14 year in Iraq 2022. Convenient sample of (1597) child is included in the study and recruited from the records of the Iraqi Council of Cancer Registry Center at the Ministry of Health in Iraq. Analysis of the results depicts that leukemia has the higher incidence rate among all cancers in Iraqi children with respect to their age and gender. The study concludes that leukemia is accounted to have higher incidence rate among the top ten childhood cancers in Iraq 2022 [8].

Another descriptive study which involves gathering subject data covering all child malignancy diagnoses before the age of (15) within an Iraqi population from 2002. This has been accomplished by utilizing published cancer registry records. The study involved a population of (681,013,099) in Iraq, including (276,811,275) children aged from zero to fourteen years old accounting for about forty-point sixty-five percent of the total populace. The study indicates that the most prevalent types include leukemia, lymphoma, brain tumors, Wilm tumor, and retinoblastoma [9].

A cross-sectional study aims to identify the five most common cancers in children under (10) in Kurdistan and analyze their incidence. Among (374) cases, leukemia is the most common cancer (32%), followed by complex mixed and stromal neoplasm (13%), lymphoma (13%),

neuroepitheliomatous neoplasm (11%), and glioma (7%) [10]. Related to the governorates, the highest crude incidence rate of cancers in children (0-14 years) was recorded in Al- Al-Muthana (17.1 /100,000 children 0-14 year Populations) and the lowest is in Babil (6.5 /100,000 children 0- 14 year P). An epidemiological study finds out the age -standardized incidence rate of cancer in 2022 was 158.94 per 100000. Incidence rates were more prominent in Al-Najaf, Al-Sulaymaniyah, Erbil and Karbala (123.74, 121.4, 119.9 and 111.8 per 100 000, respectively) [11].

Conclusion:

The study concludes that cancer cases are increasing and so on the incidence rates among Iraqis during the year of 2023 as far as the age is increasing.

Recommendations

The study recommends that the increasing trend of cancer requires further nation-wide mandatory cancer screening. Epidemiological studies to describe incidence by other socio-demographic characteristics are needed in Iraq. Further research, in this area, is essential for understanding the causes underlying these trends and their impact more thoroughly.

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