

## The Pattern of Cancer in Iraq (2015-2018): An Overview

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### Abstract

**Background:** The world Health organization considered cancer to be the second leading cause of death throughout the world accounting for about 9.6 million deaths, (one in six deaths) during the year 2018. We have previously reported the patterns of various types of cancer in Iraq and the pattern of cancer by primary tumor site in several publications. However, there is a continuous need for an updated comprehensive knowledge about the pattern of cancers to help in planning preventive and therapeutic services. The aim of this paper is to provide a recent account of the pattern of cancer in Iraq by primary site during four-year period (2015-2018).

**Patients and Methods:** During four-year period (2015-2018), 111350 new cases of cancer were recorded by the Iraqi Ministry of health including 25,269 cases during the year 2015, 25556 cases during the year 2016, 29023 cases during the year 2017, and 31502 cases during the year 2018.

**Results:** During this four-year period, breast cancer was the number one cancer in Iraq accounting for 19.74% of the total cases of cancer. Bronchial and pulmonary cancer was the second most common cancer during this four-year period accounting for 8% of the total cases of cancer. Leukemia was the third most common cancer during this four-year period accounting for 6.6% of the total cases of cancer.

**Conclusion:** The findings in this study suggests that the incidence rate of new cases were increasing during the previous decades as it was 38.91/100,000 population in 1994, 52.8\100,000 in 2006, and 82.62/100,000 population in 2018. The pattern of cancers in Iraq was not very similar to the latest global pattern reported by the World Health Organization.

**Keywords:** Cancer pattern, primary site, Iraq.

### INTRODUCTION

Cancers represent a large group of diseases resulting from the emergence of uncontrollable growth of abnormal cells. Cancers can affect almost any organ or tissue of the body and spread to adjacent tissues and organs and to distant tissues and organs by metastasis. The world Health organization considered cancer to be the second leading cause of death throughout the world accounting for about 9.6 million deaths, (one in six deaths) during the year 2018. We have previously reported the patterns of various types of cancer in Iraq and the pattern of cancer by primary tumor site in several publications. However, there is a continuous

need for an updated comprehensive knowledge about the pattern of cancers to help in planning preventive and therapeutic services [1, 2, 3, 4]. The aim of this paper is to provide a recent account of the pattern of cancer in Iraq by primary site during four-year period (2015-2018).

### PATIENTS AND METHODS

During four-year period (2015-2018), 111350 new cases of cancer (43.6% males and 56.4%) females) were recorded by the Iraqi Ministry of health including 25,269 cases during the year 2015, 25556 cases during the year 2016, 29023 cases during the year 2017, and 31502 cases during the year 2018.

**RESULTS**

During these four years, above 70-year population was the most affected age group, and the incidence of cancer was generally increasing with age.

During this four-year period, breast cancer was the number one cancer in Iraq accounting for 19.1% of the total registered cases of cancer during the year 2015, 19.55% of the total registered cases of cancer during the year 2016, 20.50% of the total registered cases of cancer during the year 2017, and 19.70% of the total registered cases of cancer during the year 2018.

Bronchial and pulmonary cancer was the second most common cancer during this four-year period accounting for 8.1% of the total registered cases of cancer during the year 2015, 8.31%, of the total registered cases of cancer during the year 2016, 7.80% of the total registered cases of cancer during the year 2017, and 8.19% of the total registered cases of cancer during the year 2018. Cancer of the bronchus and lung cancer was the most common cancer in males occurring in (6.7/100,000 males in 2015, 7.76/100,000 males in 2016, 8.42\100,000 males in 2017, and 9.50/100,000 males in 2018. Table-1 shows the numbers of percentages of cancers by primary site in Iraq during four-year period (2015-2018).Table-2 shows the numbers of percentages of cancers in males by primary site in Iraq during four-year period (2015-2018). Table-3 shows the numbers of percentages of cancers in females by primary site in Iraq during four-year period (2015-2018).

**Table1.** *The numbers of percentages of cancers by primary site in Iraq during four-year period (2015-2018)*

Breast	21977 (19.74%)
Bronchus & lung	8994 (8%)
Leukemia	7349 (6.6%)
Colorectal	6611 (5.94%)
Urinary bladder	5696 (5.11%)
Brain & other CNS tumors	5681 (5.1%)
Non-Hodgkin lymphomas	5025 (4.5%)
Thyroid gland	4567 (4.1%)
Skin	3869 (3.47%)
Other site cancers	41581 (37.34%)
Total cancer	111350

**Table2.** *The numbers of percentages of cancers in males by primary site in Iraq during four-year period (2015-2018)*

Bronchus & lung	6322 (13%)
Urinary bladder	4296 (8.85 %)
Leukemia	4108 (8.47%)
Colorectal	3496 (7.2%)
Prostate	3399 (7%)
Brain & other CNS tumors	2991 (6.16%)
Non-Hodgkin lymphomas	2701 (5.56%)
Skin	2043 (4.2%)
Stomach	1869 (3.85%)
Other site cancers	17286 (35.63%)
Total in males	48511

**Table3.** *The numbers of percentages of cancers in females by primary site in Iraq during four-year period (2015-2018)*

Breast	21587 (34.35%)
Thyroid gland	3450 (5.5%)
Leukemia	3241 (5.1%)
Colorectal	3120 (4.96%)
Brain & other CNS tumors	2688 (4.27%)
Bronchus & lung	2672 (4.25%)
Ovary	2557 (4%)
Non-Hodgkin lymphomas	2324 (3.7%)
Skin	1826 (2.9%)
Other site cancers	19354 (30.8%)
Total cancer	62839

During this four-year period (2015-2018), 6442 new cases of cancer were registered in children from birth to 14 year of age accounting for about 5.78% of the total registered cases, and including 1556 in 2015, 1511 in 2016, 1660 during the year 2017, and 1715 during the year 2018.

Leukemia was the number one cancer in children occurring in 3/100,000 children during the year 2015, 3.07/100,000 during the year 2016, 3.71\100,000 during the year 2017, and 3.56/100,000 during the year 2018.

During this four-year period (2015-2018), a total of patients died from cancer including 8825 patients during the year 2015, 7568 patients during the year

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2016, 7145 patients during the year 2017, and 10,293 patients during the year 2018.

### DISCUSSION

The World Health Organization considered that lung, prostate, colorectal, stomach and liver cancers as the most common types of cancer in males in the world, while breast, colorectal, lung, cervical and thyroid cancers were considered the most common in females in the world. However, in this study as the most common types of cancer by primary site in Iraqi males were lung, bladder, leukemia, colorectal, and prostate cancers. Therefore, the pattern of male cancers in Iraq was not very similar to the latest global pattern reported by the World Health Organization in 2018 [3]. In addition, as the most common types of cancer by primary site in Iraqi females were breast, thyroid, leukemia, colorectal, and brain & other CNS tumors. The pattern of female cancers in Iraq was also not very similar to the latest global pattern reported by the World Health Organization in 2018 [3].

In the largest previously published series of 63923 Iraqi patients with various types of newly diagnosed cancer registered during five-year period (2000-2004), cancers of the breast, lung & bronchus, leukemia, Bladder, and brain & CNS were the most common cancers. However, in this study cancers of the breast, lung & bronchus, leukemia, Colorectal, and bladder

were the most common, suggesting some change in pattern of cancer with more colorectal cancer and less brain & CNS.

### CONCLUSION

The findings in this study suggests that the incidence rate of new cases were increasing during the previous decades as it was 38.91/100,000 population in 1994, 52.8\100,000 in 2006, and 82.62/100,000 population in 2018. The pattern of cancers in Iraq was not very similar to the latest global pattern reported by the World Health Organization.

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