

## The Pattern of Childhood Cancer in Iraq (2015-2018)

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### Abstract

**Background:** Childhood cancers include a variety of malignancies with variable incidence by age, sex, ethnicity and geographic region. Cancers in children has been reported to have different patterns in various countries of the world. We have previously described the pattern of childhood cancer in Iraq during a five-year period (2000-2004). The aim of this paper is to describe the most recent pattern of cancer by primary site in Iraqi children observed during four-year period (2015-2018).

**Patients and Methods:** During four-year period (2015-2018), 6442 new cases of cancer were registered in children from birth to 14 year of age accounting for about 5.8% of the total registered cases, and including 1556 in 2015, 1511 in 2016, 1660 during the year 2017, and 1715 during the year 2018.

**Results:** 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. Brain and CNS cancer was the second most common childhood cancer. Non-Hodgkin lymphoma was the third most common childhood cancer in males while renal cancer was the third most common childhood cancer in females. Most common childhood cancers were commoner in males, but renal cancer and eye cancer were commoner in females.

**Conclusion:** The pattern of childhood cancers in Iraq witnessed some changes during the previous decades.

**Keywords:** Childhood cancers, types, Iraq.

### INTRODUCTION

Childhood cancers include a variety of malignancies with variable incidence by age, sex, ethnicity and geographic region. Cancers in children has been reported to have different patterns in various countries of the world. We have previously described the pattern of childhood cancer in Iraq during a five-year period (2000-2004) [1, 2]. The aim of this paper is to describe the most recent pattern of cancer by primary site in Iraqi children observed during four-year period (2015-2018).

### PATIENTS AND METHODS

During four-year period (2015-2018), 6442 new cases of cancer were registered in children from birth to 14 year of age accounting for about 5.8% of the total registered cases, and including 1556 in 2015, 1511 in 2016, 1660 during the year 2017, and 1715 during the year 2018.

### RESULTS

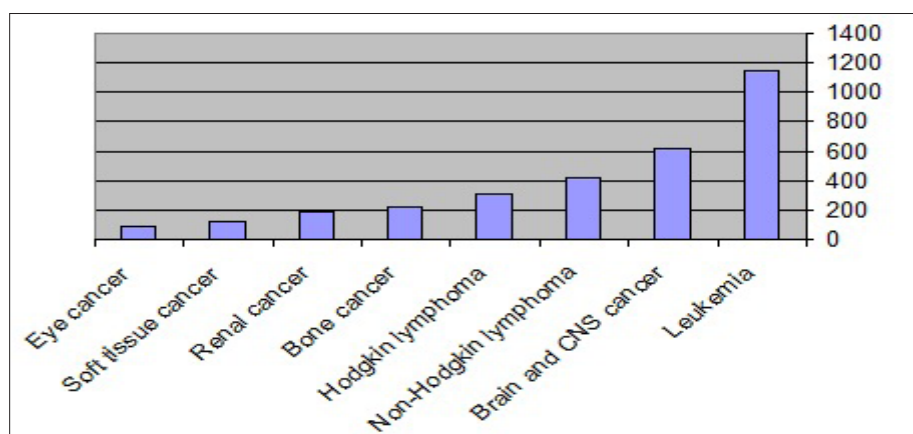
Leukemia was the number one cancer in children occurring in 3/100,000 children during the year 2015, 3.07/100,000 during the year 2016, 3.71\100,000 during the year 2017, and 3.56/100,000 during the year 2018. Table-1 shows the numbers of the commoner types of childhood cancer. Brain and CNS cancer was the second most common childhood cancer. Non-Hodgkin lymphoma was the third most common childhood cancer in males while renal cancer was the third most common childhood cancer in females.

Most common childhood cancers were commoner in males, but renal cancer and eye cancer were commoner in females. Figure-1A shows the order of the commoner childhood cancers in males and figure-1B shows the order of the commoner childhood cancers in females.

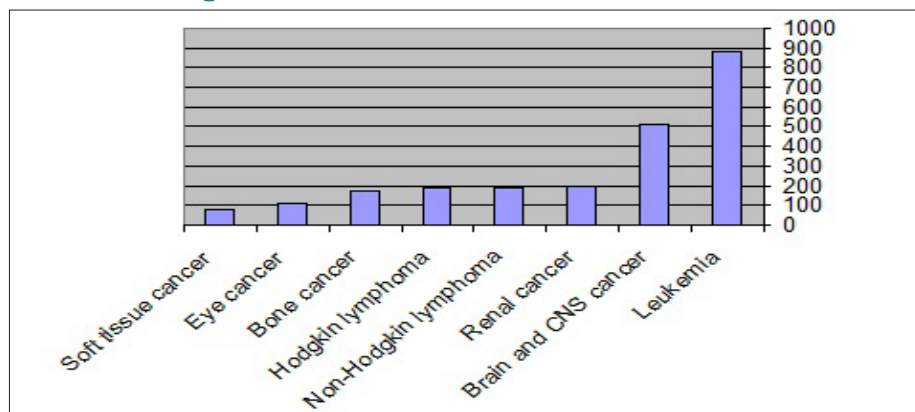
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**Table1.** The numbers of the commoner types of childhood cancer

	Number	Male	Female
Leukemia	2028	1148 (56.6%)	880 (43.4%)
Brain and CNS cancer	1123	613 (54.6%)	510 (45.4%)
Non-Hodgkin lymphoma	607	418 (69%)	189 (31%)
Hodgkin lymphoma	499	312 (62.5%)	187 (37.5%)
Bone cancer	401	225 (56%)	176 (44%)
Renal cancer	387	189 (48.8%)	198 (51.2%)
Soft tissue cancer	199	117 (58.8%)	82 (41.2%)
Eye cancer	196	87 (44.4%)	109 (55.6%)
Other	1002	528 (52.7%)	474 (47.3%)
Total	6442	3637 (56.5%)	2805 (43.5%)



**Figure1A.** The commoner childhood cancers in males



**Figure1B.** The commoner childhood cancers in females

## DISCUSSION

In the previously published largest series of 63923 Iraqi patients with various types of newly diagnosed cancer registered by the Iraqi Ministry of Health during five-year period (2000-2004), 5049 cases of cancers occurred in children under 14 years of age accounting for approximately 8% of all cancer cases in Iraq [2], while in this study childhood cancers accounted for about 5.8% of the total registered cases of cancer.

In the previous study, leukemia was most common

childhood cancer like in this study. However, Non-Hodgkin lymphoma was the second most common childhood cancer in males while brain and CNS cancer was the second most common childhood cancer in females. Brain and CNS cancer was the third most common childhood cancer in males, while Non-Hodgkin lymphoma was the third most common childhood cancer in females. Table-2 shows the numbers of the commoner types of childhood cancer during five-year period (2000-2004).

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**Table 2.** The numbers of the commoner types of childhood cancer during five-year period (2000-2004)

	Number	Male	Female
Leukemia	1675 (33%)	999	676
NHL	834(16.5%)	537	297
Brain & CNS	786(15.6%)	459	327
Hodgkin lymphoma	262 (5%)	193	69
Kidney	246(4.9%)	135	111
Bone	227(4.5%)	127	100
Eye	173(3.4%)	102	71
Soft tissues	159 (3.1%)	91	68
Adrenal	106 (2.1%)	55	51
Testis/Ovary	90 (1.8%)	26	64
Liver	45 (0.9%)	23	22

Cancers in children has been reported to have different patterns in various countries of the world [2].

In Costa Rica, during the 15-year period, 2396 cases of cancers in children were reported Most frequent cancer types were leukemia (40.5%), brain and CNS tumors (13.9%), and lymphomas (12.7%) [3].

Stefan (2015) emphasized that information about childhood cancers is not available from many geographic regions in the world especially from Africa. However, Stefan estimated that the most common childhood cancers in Africa were nephroblastoma, leukemia, retinoblastoma, and Burkitt lymphoma [4].

### CONCLUSION

The pattern of childhood cancers in Iraq witnessed some changes during the previous decades.

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