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## Incidence Rate of Top Ten Cancers among Children 0-14 Year in Iraq 2023

Mohammed F Khalifa<sup>1\*</sup>, Hala S Abdulwahid<sup>2</sup>

<sup>1</sup> Professor, Head of Pharmacy Department, Ishtar Medical Technical Institute, Iraq

<sup>2</sup> Professor, Dean of College of Nursing, Al-Turath University, Iraq

\* Corresponding Author: Mohammed F Khalifa

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### Abstract

**Objective(s):** The present study aims at determining the incidence rate of the top ten cancers among children 0-14 year in Iraq 2023.

**Methodology:** A descriptive, prospective, study is carried throughout the present study to determine the incidence rate of top ten cancers among children 0-14 year in Iraq 2023. convenient sample of (1922) child 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 children demographic characteristics are gathered through the use of demographic data sheet that include age and gender of each child.

**Results:** Analysis of the results depicts that the total number of children with cancers are representing (4.5%) of all cancer cases of all age groups in Iraq. Leukemia has the highest incidence rate among all cancers in Iraqi children with respect to their age and gender.

**Conclusion:** The study concludes that leukemia is accounted to have higher incidence rate among the top ten childhood cancers in Iraq 2023.

**Recommendations:** The study recommends that the increasing trend of leukemia requires further epidemiological studies to describe incidence by geography 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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**Keywords:** Incidence Rate, Top Ten Cancer, Children, Iraq

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### Introduction

Although there is little recent data, the incidence of childhood cancer has steadily increased over the past few decades. In Iraq, childhood cancer is a serious health concern. Leukemia, lymphoma, brain tumors, Wilms tumor, and retinoblastoma are the most common types<sup>[1]</sup>.

One of the main causes of disease-related deaths after infancy is childhood cancer. Leukemia is the most common cancer in developed nations, followed by brain tumors and lymphomas; in developing nations, nephronblastoma and lymphomas are more common. This study looks into the trends in Iraq's Kurdistan Region<sup>[2]</sup>.

In Iraq, leukemia accounts for 33% of all childhood cancers, making it the most prevalent type. Leukemia, Hodgkin lymphomas (NHL), central nervous system neoplasms, non-NHL, renal tumors, bone tumors, eye (retinoblastomas), soft tissue tumors, adrenal gland tumors, and testicular and ovarian tumors are the top ten childhood cancers<sup>[3]</sup>.

Based on the early stated evidence, the present study has attempted to determine the incidence rate of the top ten cancers among children 0-14 year in Iraq 2022.

### Methodology

A descriptive, prospective, design is carried throughout the present study to determine the incidence rate of top ten cancers among children 0-14 in Iraq 2023. Convenient sample of (1922) child 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 children demographic characteristics are

gathered through the use of demographic data sheet that include age and gender of each child.

## Results

**Table 1:** Frequency and Percentage of Top Ten Cancers among Children 0-14 Year in Iraq 2023

Site	Frequency	Percentage
Leukemia	551	28.7
Brain, CNS	405	21.1
Hodgkin Lymphomas	145	7.5
Bone and cartilage, limbs, Other	131	6.8
Non-Hodgkin Lymphoma	127	6.6
Kidney	109	5.7
Adrenal Gland	72	3.7
Soft Tissues	66	3.4
Eye and Adnexa	64	3.3
Liver	34	1.8
Total Top Ten	1,704	88.7
Total Other Sites	218	11.3
Total All Sites	1,922	100

Results, out of this table, depict that leukemia is accounted as the most among top ten cancers among children 0-14 year in Iraq for the year of 2023, Top ten cancers are accounted for the majority of cancers among children in Iraq for the same year (887%).

**Table 2:** Frequency and Percentage of Top Ten Cancers among Children 0-14 Year in Iraq 2023 by Age

Site	(0-4) F	(0-4) %	(5-9) F	(5-9) %	(10-14) F	(10-14) %	Total	Total %
Leukemia	233	31.8	172	29.5	146	24.1	551	28.7
Brain, CNS	102	13.9	159	27.3	144	23.7	405	21.1
Hodgkin Lymphomas	24	3.3	55	9.4	66	10.9	145	7.5
Bone and cartilage, limbs, Other	21	2.9	26	4.5	84	13.8	131	6.8
Non-Hodgkin Lymphoma	38	5.2	50	8.6	39	6.4	127	6.6
Kidney	76	10.4	28	4.8	5	0.8	109	5.7
Adrenal Gland	51	7.0	14	2.4	7	1.2	72	3.7
Soft Tissues	24	3.3	18	3.1	24	4.0	66	3.4
Eye and Adnexa	50	6.8	10	1.7	4	0.7	64	3.3
Liver	26	3.6	4	0.7	4	0.7	34	1.8
Total Top Ten	645	88.1	536	91.9	523	86.2	1,704	88.7
Total Other Sites	87	11.9	47	8.1	84	13.8	218	11.3
Total All Sites	732	100	583	100	607	100	1,922	100

Results, out of this table, reveal that leukemia is accounted as the most common cancer among the top ten cancers in children (0-14) year in Iraq across all age groups for the year of 2023. The highest number of cancer cases is reported in the age group (0-4) years.

**Table 3:** Distribution of Top Ten Cancers among Children 0-14 Year in Iraq 2023 by Gender

Site	Males No.	Males %	Females No.	Females %
Leukemia	300	28.2	251	29.2
Brain, CNS	232	21.8	173	20.1
Hodgkin Lymphomas	98	9.2	47	5.5
Non-Hodgkin Lymphoma	85	8	42	4.9
Bone and cartilage, limbs, other	68	6.4	63	7.3
Kidney	45	4.2	64	7.4
Soft Tissues	42	4	24	2.8
Eye and Adnexa	38	3.6	26	3
Adrenal Gland	35	3.3	37	4.3
Unspecified Site	20	1.9	21	2.4
Total Top Ten Sites	963	90.7	748	87
Total Other Sites	99	9.3	112	13
Total All Sites	1,062	100	860	100

Results, out of this table, indicate that leukemia is accounted as the most common cancer among males more than females' children 0-14 year in Iraq for the year of 2023.

**Table 4:** Incidence Rate of Top Ten Cancers among Children 0-14 Year in Iraq 2023

Site	Percentage (%)
Non-Hodgkin Lymphoma	0.9
Bone, Cartilage, Limbs and Others	0.8
Kidney	0.5
Soft Tissues	0.5
Eye and Adnexa	0.4
Adrenal Gland	0.4
Unspecified Site	0.2

Results, out of this table, depict that leukemia is accounted for having higher incidence rate among the top ten cancers in children 0-14 year in Iraq for the year of 2023.

**Table 5:** Distribution of Top Ten Cancers in Children 0-14 year by Governorates, Iraq, 2023

Governorate	Incidence Rate
Al-Muthana	17.1
Al-Sulaimaniyah	14.7
Erbil	13
Babylon	6.5

Results, out of this table, show that Al-Muthana governorate reports the highest incidence rate of cancers in children (17.1/100,000) which is followed by Al-Sulaimaniyah (14.7/100,000) and Erbil (13/100,000) while Babylon reports the lowest incidence rate (6.5/100,000).

## Discussion

A total of 1922 cancer cases were diagnosed among children aged between 0 and 14 accounting for 4.5% of the total number of cancers reported to the Iraqi cancer registry in 2023. The crude incidence rate was 11/100,000. The reported incidents show that cancer was more common among boys than girls, 1062 (55.3%) cases were reported among boys, with crude incidence rate 11.8/100,000 and 860 (44.7%) cases were reported among girls, with crude incidence rate 10.1 /100,000. Al-Muthana governorate reported the highest incidence rate of cancers in children 17.1/100,000 followed by Al-Sulaimaniyah 14.7/100,000 and Erbil 13/100,000 while Babil reported the lowest incidence rate 6.5/100,000. Throughout the course of data analysis, findings of the present study indicate that children of (0-14) year old in Iraq have developed leukemia as being accounted as one of the top ten cancer with high incidence rates with respect to their age groups and gender as males than females in the year of 2022.

An epidemiological, cross-sectional study that attempts to determine the five most prevalent cancers in Kurdistan among children under ten and analyze their incidence in order to promote additional research and assistance for impacted children examines supporting evidence. According to the study, leukemia accounts for 34% of the cases, making it the most common cancer. Complex mixed and stromal neoplasms come in at 13%, lymphomas at 13%, neuroepitheliomatous neoplasms at 11%, and gliomas at 7%. 163 female cases and 210 male cases are reported [2].

Another epidemiological study conducted to identify the most prevalent cancer among children in Basra, Iraq, finds additional supporting evidence. The study includes 143 children in total. The results show that the most prevalent cancer in these kids is leukemia [4].

The Iraqi Cancer Registry's Annual Report for 2020 states that 1,740 out of 31,692 cases of cancer in children aged 0 to 14 account for 5 point 49 percent of all cancer cases across all age groups, with an incidence rate of 11 point 46 per 100,000 children aged 0 to 14. The highest incidence of the top ten cancers, according to age group, is found in children aged 0–10 years (12–13/100,000). Leukemia has the highest incidence of cancer in children (3 out of 60 per 100,000 children aged 0 to 14) [5].

According to the Ministry of Health in Iraq, the top 10 childhood cancers for males are leukemia, Hodgkin lymphomas, central nervous system neoplasms, non-Hodgkin lymphomas, renal tumors, bone tumors and Eye (retinoblastomas), soft tissues tumors, and adrenal gland tumors. Meanwhile, the top 10 childhood cancers for females are leukemia, central nervous system neoplasms, Hodgkin lymphomas, renal tumors, bone tumors and Eye (retinoblastomas), soft tissues tumors, adrenal gland tumors, and ovarian tumors [3].

According to an exploratory study, the age-standardized incidence rates for both genders, aged 0–14, from 2000–2019 are 3.45/100,000. In Iraq, the incidence rate of childhood leukemia has been steadily rising for both sexes [6].

## Conclusion

Based on the discussion of such review, the study concludes that: the incidence rate of the top ten cancers among children 0-14 year in Iraq 2023 is increasing. Leukemia is accounted to have higher incidence rate among the top ten childhood cancers in Iraq 2023.

## Recommendations

With respect to the study conclusion, the study recommends that: Early detection of childhood cancer, in turn, can play an important role in its prevention. The existing research findings will be beneficial for future screening studies for childhood cancer. The increasing trend of leukemia requires further epidemiological studies to describe incidence by geography 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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