



## Original Article

# Incidence Rate of Top Ten Cancers among Children 0-14 Year in Iraq 2022

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### Abstract:

**Objective(s):** The present study aims at determining the incidence rate of the top ten cancer among children 0-14 year in Iraq 2022.

**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 2022. convenient sample of (1597) 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 leukemia has the higher 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 2022.

**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.

**Key Words:** Incidence Rate, Top Ten Cancer, Children, Iraq

### 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, nephroblastoma 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.

**Results:**

**Table (1): Frequency and Percentage of Top Ten Cancers among Children 0-14 Year in Iraq 2022**

<u>Site</u>	<u>Frequency</u>	<u>Percentage</u>
Leukemia	546	30.0
Brain	322	17.7
Hodgkin Lymphomas	138	7.6
Bone, Cartilage, limbs and Others	131	7.2
Non-Hodgkin Lymphoma	123	6.8
Kidney	101	5.6
Adrenal Gland	75	4.1
Soft Tissues	69	3.8
Eye and Adnexa	57	3.1
Unspecified Site	35	1.9
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Total Top Ten	1597	87.8
Total Other Sites	222	12.2
Total All Sites	1818	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 2022, Top ten cancers are accounted for the majority of cancers among children in Iraq for the same year (87.8%).

**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 2022. Convenient sample of (1597) 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.

**Table (2): Frequency and Percentage of Top Ten Cancers among Children 0-14 Year in Iraq 2022 by Age**

<u>Site</u>	<u>(0-4) Year</u>		<u>(5-9) Year</u>		<u>(10-14) Year</u>	
	<u>F</u>	<u>%</u>	<u>F</u>	<u>%</u>	<u>F</u>	<u>%</u>
Leukemia	219	12.0	182	10.0	145	8.0
Brain	86	4.7	120	6.6	116	6.4
Hodgkin Lymphomas	18	1.0	53	2.9	67	3.7
Bone, Cartilage, limbs and Others	14	0.8	34	1.9	83	4.6
Non-Hodgkin Lymphoma	35	1.9	45	2.5	43	2.4
Kidney	62	3.4	36	2.0	3	0.2
Adrenal Gland	56	3.1	14	0.8	5	0.3
Soft Tissues	21	1.2	15	0.8	33	1.8
Eye and Adnexa	46	2.5	10	0.6	1	0.1
Unspecified Site	17	0.9	10	0.6	8	0.4
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Total Top Ten	574	31.6	519	28.5	504	27.7
Total Other Sites	93	5.1	45	2.5	83	4.6
Total All Sites	667	36.7	564	31	587	32.3

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 for the year of 2022,

**Table (3): Distribution of Top Ten Cancers among Children 0-14 Year in Iraq 2022 by Gender**

**a. Males**

Site	No.	%
Leukemia	309	29.8
Brain	178	17.2
Hodgkin Lymphomas	95	9.2
Non-Hodgkin Lymphomas	85	8.2
Bone, Cartilage, limbs and Other	78	7.5
Kidney	52	5.0
Adrenal Gland	42	4.1
Soft Tissues	38	3.7
Eye and Adnexa	25	2.4
Unspecified Site	19	1.8
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Total Top Ten	921	88.8
Total Other Sites	166	11.2
Total All Sites	1037	100

**b. Females**

Site	No.	%
Leukemia	237	30.3
Brain	144	18.4
Bone, Cartilage, limbs and Others	53	6.8
Kidney	49	6.3
Hodgkin Lymphomas	43	5.5
Non-Hodgkin Lymphomas	38	4.9
Adrenal Gland	37	4.7
Eye and Adnexa	32	4.1
Soft Tissues	69	3.8
Eye and Adnexa	57	3.1
Ovary	17	2.2
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Total Top Ten	677	86.7
Total Other Sites	104	13.3
Total All Sites	781	100

Results, out of this table, indicate that leukemia is accounted as the most common cancer among children of both gender 0-14 year in Iraq for the year of 2022.

**Table (4): Incidence of Top Ten Cancers among Children 0-14 Year in Iraq 2022**

Site	Incidence Rate
Leukemia	3.2
Brain	1.9
Hodgkin Lymphomas	0.8
Bone, Cartilage, limbs and Others	0.8
Non-Hodgkin Lymphoma	0.7
Kidney	0.6
Adrenal Gland	0.4
Soft Tissues	0.4
Eye and Adnexa	0.3
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 2022,

**Table (5): Incidence Rate of Top Ten Cancers among Children 0-14 Year in Iraq 2022 by Gender**

**a. Males**

Site	Incidence Rate
Leukemia	3.5
Brain	2.0
Hodgkin Lymphomas	1.1
Non-Hodgkin Lymphomas	1.0
Bone, Cartilage, limbs and Other	0.9
Kidney	0.6
Adrenal Gland	0.5
Soft Tissues	0.4
Eye and Adnexa	0.3
Unspecified Site	0.2

**b. Females**

Site	Incidence Rate
Leukemia	2.9
Brain	1.7
Bone, Cartilage, limbs and Others	0.6
Kidney	0.6
Hodgkin Lymphomas	0.5
Non-Hodgkin Lymphomas	0.5
Adrenal Gland	4.0
Eye and Adnexa	4.0
Soft Tissues	3.0
Ovary	2.0

Results, out of this table, show that children with leukemia have higher incidence rate for both gender; males (3.5) and females (2.9).

### Discussion:

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 both males and 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 <sup>(2)</sup>.

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 <sup>(4)</sup>.

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) <sup>(5)</sup>.

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 <sup>(3)</sup>.

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 <sup>(6)</sup>.

### Conclusion:

Based on the discussion of such review, the study concludes that:

1. The incidence rate of the top ten cancers among children 0-14 year in Iraq 2022 is increasing.
2. Leukemia is accounted to have higher incidence rate among the top ten childhood cancers in Iraq 2022.

### Recommendations:

With respect to the study conclusion, the study recommends that:

1. Early detection of childhood cancer, in turn, can play an important role in its prevention.
2. The existing research findings will be beneficial for future screening studies for childhood cancer.
3. 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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