

Spatial Dimensions Of The Injuries Of Children In Basra Governorate With Some Cancerous Diseases

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Abstract

The study aims to highlight the importance of cancer diseases that affect children under the age of fifteen in Basra Governorate for the period from 2010 to 2023. Children were classified into three age groups (0-4) years, (4-9) years, (10-14) years. The study found that cancer diseases affect children of all age groups. The age group (0-4) years recorded the highest incidence of cancer diseases, amounting to (781) cases occupied by females (355) and males (426). The category (10-14) years ranked second with (719) injuries. The share of females was (305), while males (414) injuries. As for the category (5-9) years, the number of injuries was (606) injuries. Females occupied (272) injuries and males (334) injuries. The center of Basra Governorate (Basra District) recorded the first number of injuries, amounting to about (958) injuries, to occupy Al-Zubair District second with a number of (380) injuries, while Al-Fao District recorded the lowest number of cases in the study area with (29) injuries. It turned out that bone marrow cancer ranked first among cancer diseases with a number of (372) injuries, brain and brain cancer with a number of (173) injuries, and adrenal and lymphoma cancer with a number of (79) injuries, while bone, connective and soft tissue cancer were (67, 26) injuries in succession, and it was found that Basra district ranked first with types of cancer diseases to occupy Al-Zubair district second, while Al-Faw district came last.

Keywords: Children, injuries, cancer diseases, Al-Fao District

1. Introduction

The disease is one of the diseases with an ancient history and not born of the hour. It has been known for a long time, so it is not a modern disease, and the journey of suffering begins with moral and psychological suffering in which the patient feels a psychological mother that makes him a nightmare that accompanies him until he succumbs to treatment, which is no less suffering than the suffering of disease and cancer, unlike the types of diseases that affect humans. It is not subject to final eradication, as is the case in smallpox, which is not one species, but reaches dozens of malignant species.

The problem of the study is determined by answering the following questions

1. Do children in Basra Governorate suffer from cancerous diseases?
2. Is there an increase in the number of children with cancer by age groups?
3. Is there a spatial and temporal variation in the incidence of cancer in children in Basra Governorate?
4. Do childhood injuries show cancer diseases of both sexes and which are the most affected?

Hypothesis of the Study

The study assumes

1. Children in Basra Governorate suffer from cancerous diseases.
2. There are age groups affected by cancer diseases that have taken an increasing trend.
3. The spatial and temporal distribution of child injuries in Basra Governorate and in both genders differed.

The importance of the study is shown through a geographical research that focused on a specific type of studies of great importance in the urban reality, which is the incidence of cancer diseases that are constantly increasing and that affect a group that can be relied upon in the future, which is children and indicate the seriousness of this disease and the extent of its impact on the largest possible number

Fourth: Boundaries of the study area

It is represented by the astronomical and geographical location of the Governorate of Basra, which is located in the southeastern part of Iraq, between the latitudes of (31.40-29.5) north and between the arches of length (48.30-46.40) east, bordered by the governorates of Maysan and Dhi Qar from the north and northwest, the Islamic Republic of Iran to the east, the State of Kuwait and the Arabian Gulf to the south, and the Governorate of Muthanna to the west, with an area of (19070) km², which is (4.4%) of the total area of Iraq of (435052) km², and the study area is inhabited by approximately (3220478) people distributed over its nine administrative units (1) map districts.

As for the time limits of the study, it was represented by the period from 2010 to 2023 to be a time series based on the work of geographical analysis.

Fifth: The Concept of Cancer

Despite the development and medical progress, the reasons that lead to the occurrence of the disease have not been known. Most cases are attributed to genetic mutations or DNA disorder. There are some factors that contribute to the emergence of the disease, including the genetic predisposition factor, as in neurofibromatosis, as well as the environmental factor, including exposure before or after birth to chemicals, radioactive materials, viruses, magnetic fields and war waste ⁽¹⁾. It occurs when the cells of the body turn into abnormal cells and divide without control or regulation. Each element in the human body consists of cells that usually divide in a regular way to produce more cells when needed to compensate for damaged cells and maintain the body in a healthy state ⁽²⁾. It has been defined as malignant diseases that affect the hematopoietic cells in the bone marrow, lead to the abnormal growth of some cells, and cause the occupation of a space of bone marrow space that makes normal cells do not find enough space to multiply to produce blood components of red or white blood cells or platelets. A combination of environmental and genetic factors and some endogenous characteristics are combined in their appearance ⁽³⁾. There are also factors that encourage the occurrence of cancer such as the occurrence of random error or mutation in the DNA copy when dividing the cell, or because of the inheritance of this error or mutation from the mother cell and the formation of new cancer cells, and genetic changes or mutations occur in a certain type of genes. ⁽⁴⁾ as follows :

1. Oncogenes: These genes are active in the case of a cancer cell to give the cell new characteristics, such as excessive overgrowth and division, and provide protection against apoptosis (programmed cell death), and help the cell to grow in unusual conditions.
2. Tumor suppressor genes: They are genes that are stopped in the case of a cancer cell because they oppose the formation of any errors in DNA copying, monitor cell division, and work to fuse cells and not move them. They also help the immune system protect the tissue. As for cancer genes, their genetic expression leads to the transformation of ordinary cells into cancer cells, as they can lead to changes in the genes that control the growth and division of cells, which consist of DNA. The natural image of these genes is known as primary cancer genes, as they increase their activity or do not change one base in genes and with the accumulation of changes that may lead to the transformation of cancer genes, as well as the transfer of genes from their original chromosome to a chromosome that may lead to the transformation of primary cancer genes into cancer genes. ⁽⁵⁾ As the cancer grows, it passes through three main stages. ⁽⁶⁾ :
 1. The beginning: It is a rapid and irreversible stage towards the formation of the tumor, as it begins at the level of

any cell with a simple change in its work and the way it is controlled and results from the damage that occurs to the amino acid DNA, and the substances that cause this beginning are called carcinogens.

2. Development: It is the stage of transformation into a tumor mass and increases in growth and division at the expense of other cells.
3. Progress and transformation: Here it turns into a large tumor and if not treated, it will continue to grow and destroy neighboring tissues and may spread to distant organs by blood and lymphatic vessels.

Sixth: - Spatial variation of children with cancer in Basra Governorate for the period from 2010 – 2023

1: Basra District

Basra district recorded the highest number of cases in Basra Governorate and ranked first in the number of children with cancer diseases divided into age groups as follows:

A – (0-4) years

The district of Basra ranked first in the number of children affected by cancer, as the total number of children affected reached about (356) children infected for the period 2010-2023. The share of males (197) children was (46.2%) of the total number of infected males (426) children, while females reached about (159) girls (44.8%) of the total number of females affected by cancer within the aforementioned period, Table (1).

B – (5-9) years

The data of Table (2) indicated that the number of children with cancer recorded a decrease from the previous category, as the total number reached about (276) injuries, with males taking the lead by (154) infected children, constituting (46.1%) of the total, while females' injuries amounted to (113) injuries, representing (41.5%) of the total females.

C – (10 – 14) years

The number of infected children in this category increased from those in the previous category by (5-9) years, as the number of infected children reached about (335) cases. The number of infected children reached (186) infected children by (44.9%) of the total number of infected children by (414) infected children, while (149) girls were registered by (48.9%) of the total number of infected females in this category, which is (350) infected children, Table (3) .

2- Al-Zubair District

A – (0-4) years

The data of the aforementioned table indicate that the total number of children affected by cancer in Al-Zubair district amounted to (153) boys and girls , the percentage of females constituted (21.7%) of the total infected females, while the percentage of male injuries amounted to (17.8%) of the total infected males within this category as shown in Table (1) .

B – (5-9) years

The number of children infected within this category decreased from the previous category of (153) injuries, but this category recorded (109) injuries. Males occupied the top position by (57) children with cancer, constituting (17.1%) of the total , while females recorded (52) injuries, representing (19.1%) of the total female population

Table(1): Time and spatial variation of children with cancer for the age group (0 – 4) years in Basra Governorate for the period 2010 – 2023 according to districts

Years Gender Districts	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		Total	
	a	E	A	E	a	E	a	E	a	E	a	E	a	E	a	E	A	E	a	E	a	E	A	E	A	E	a	E	a	E
Al-Basra	2	1	8	12	9	15	11	14	17	7	10	21	14	22	12	16	20	14	16	14	15	16	7	16	10	13	8	16	159	197
Al Hartha	-	-	1	-	4	1	1	1	4	-	2	1	2	3	-	3	2	-	-	1	2	5	-	1	1	1	1	5	20	22
Abo Al-Khaseeb	1	-	-	2	6	1	-	-	2	5	1	2	3	2	2	3	4	-	3	2	-	3	3	5	2	3	1	3	28	31
Al Zubayr	2	1	4	6	8	7	5	5	3	4	5	9	4	10	3	6	7	3	8	4	6	2	6	4	10	11	6	4	77	76
Al-Qurna	-	1	-	1	2	2	-	1	2	5	4	2	4	3	-	1	2	1	-	-	-	2	2	1	1	1	2	2	19	23
Al Faw	-	-	1	1	-	1	-	-	1	1	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1	2	7
Shatt Al-Arab	-	-	1	-	2	-	3	3	1	1	1	1	-	2	2	2	1	1	1	2	1	1	1	2	1	4	2	5	17	24
city	-	-	1	1	-	3	1	3	3	4	-	1	1	1	4	2	1	-	3	3	2	4	-	3	2	1	2	3	20	29
Deir Ezzor	-	-	-	-	1	-	-	-	2	1	2	2	2	-	4	1	-	-	-	2	-	3	1	3	1	4	-	1	13	17
Total	5	3	16	23	32	30	21	27	35	28	25	40	30	43	27	36	37	19	31	28	26	36	20	35	28	38	22	40	355	426

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

Table(2): Temporal and spatial variation of children with cancer for the age group (5 – 9) years in Basra Governorate for the period 2010 – 2023 according to districts

Years	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		Total		
Gender																															
Districts	A	E	a	E	a	E	A	E	A	E	a	E	a	E	A	E	a	E	a	E	A	E	A	E	a	E	a	E	A	E	
Al-Basra	-	1	8	8	10	18	9	15	6	13	10	5	11	13	9	6	9	15	7	12	8	13	8	12	5	11	13	12	113	154	
Al Hartha	-	-	-	-	1	1	1	1	-	-	3	1	1	5	1	1	1	-	1	-	1	3	2	1	2	2	2	2	2	16	17
Abo Al-Khaseeb	-	-	2	2	2	2	1	1	-	1	4	2	1	4	3	1	2	5	-	-	1	7	3	3	4	4	2	3	25	35	
Al Zubayr	2	2	6	9	4	6	1	3	2	5	5	1	3	5	3	2	6	4	5	3	4	3	5	4	3	4	3	6	52	57	
Al-Qurna	-	-	1	-	1	1	-	-	3	1	2	1	2	3	1	-	-	1	1	-	2	2	-	2	-	1	1	1	14	13	
Al Faw	-	-	1	1	-	1	2	1	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-	1	-	6	4	
Shatt Al-Arab	-	-	-	1	-	1	2	3	1	3	3	-	2	2	1	-	-	2	2	2	1	4	2	1	2	2	-	2	16	23	
city	-	1	-	2	1	-	-	1	1	1	3	1	-	1	2	2	1	3	2	6	-	-	1	-	5	1	2	2	18	21	
Deir Ezzor	-	-	1	1	1	-	-	1	-	-	-	-	2	4	1	1	-	-	-	2	1	-	2	-	1	-	3	1	12	10	
Total	2	4	19	24	20	30	16	26	13	24	30	11	23	37	21	13	19	30	18	25	19	33	23	23	22	25	27	29	272	334	

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

Table (3): Temporal and spatial variation of children with cancer for the age group (10-14) years in Basra Governorate for the period 2010-2023 according to districts

Years	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		Total	
Gender																														
Districts	A	E	A	E	A	E	a	E	A	E	A	E	A	E	a	E	a	E	A	E	a	E	a	E	a	E	A	E	a	E
Al-Basra	2	4	6	14	10	12	12	8	5	9	15	7	14	15	16	14	7	15	15	8	8	24	15	18	10	19	14	19	149	186
Al Hartha	-	-	-	-	1	-	1	1	1	1	1	1	2	1	-	1	1	5	3	2	2	3	1	1	2	2	1	6	16	24
Abo Al-Khaseeb	1	1	-	1	1	2	-	3	2	2	2	-	1	-	4	1	1	1	-	6	2	5	1	5	3	3	2	3	20	33
Al Zubayr	2	2	2	2	2	3	2	5	6	8	2	6	3	3	4	6	2	2	2	4	5	8	3	6	8	8	8	4	51	67
Al-Qurna	-	2	2	-	-	2	1	2	3	2	1	1	3	1	-	-	-	3	2	1	1	4	3	2	1	1	-	-	17	21
Al Faw	-	-	-	-	-	-	1	1	1	-	-	-	1	-	1	2	-	-	-	-	1	-	-	-	2	-	-	-	7	3
Shatt Al-Arab	-	-	1	1	-	1	-	2	-	4	-	3	-	3	1	2	2	3	2	4	1	4	-	4	2	2	2	4	11	37
city	-	-	2	1	2	-	2	3	-	3	2	1	3	3	-	5	1	4	2	2	-	1	1	3	5	1	1	1	21	28
Deir Ezzor	1	-	1	3	-	2	1	1	-	-	1	1	1	1	-	-	-	-	2	2	-	4	2	-	1	-	3	1	13	15
Total	6	9	14	22	16	22	20	26	18	29	24	20	28	27	26	31	14	33	28	29	20	53	26	39	34	36	31	38	305	414

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

The number of injuries in this category increased from the previous category, but it is below the injuries in the first category, as (118) injuries were recorded, males recorded (67) injuries by (16.2%) of the total males with cancer , while females reached (51) infected children by (16.7%) of the total females, it is clear by referring to the aforementioned table that there is a noticeable increase in the number of injuries .

3- Abi Al-Khasib

A – (0-4) years

Abu Al-Khasib district ranked third in the number of injuries, which totalled (59) infected children. As usual, males ranked first with (31) infected children, representing (7.3%) of the total infected males, while the number of infected females reached (28) infected with (7.9%) of the total females .

B – (5-9) years

The total number of injuries in this category increased from the previous category, as the number of infected people reached about (60) injuries. Males outnumbered females by ten injuries by (10.5%) of the total males , while females accounted for (9.2%) of the total number of females injured.

C- (10-14) years

It is clear that this category is the least recorded category of cancer cases in Abi Al-Khasib district compared to With the previous two categories, as the number of infected people reached (52) injuries, the share of males was the largest by (33) injuries by (7.9%) and females by (6.6%) only .]

4- City District

A- (0-4) years

It is clear from the previous table that the total number of cases of this category is about (49) boys and girls with cancer. Males accounted for (29) cases, representing (6.8%) of the total number of infected male children, who are (426) infected , while females reached (25) infected, representing (5.6%) of the total number of infected females, who are (355) infected girls.

B-(5-9) years

The total number of injuries reached about (39) male injuries, representing (6.3%) of the total number of infected males recorded (21) injuries , while the percentage of females reached (6.6%) of the total number of injured females recorded (18) injuries.

Aged 10-14

The number of injuries in this category increased from the previous category by (49) injuries. The share of males was (28) injuries, constituting (6.7%) of the total number of infected males (414) infected children, while the total number of females within this category was (21) girls, representing (6.9%) of the total number of infected females.

Shatt Al-Arab

A – (0-4) years

The incidence rate in the Shatt al-Arab district for the male category was (5.6%) of the total males infected within the category of (0-4) years recorded (24) injuries , while the percentage of females reached (4.8%) of the total females infected with cancer in Basra Governorate recorded (24) injuries .

B- (5-9) years

The total number of injuries for the male category amounted to about (23) infected children, representing (6.7%) of the total number of male children, who numbered about (334) infected children, while the number of infected females within this age group amounted to (16) girls, representing (5.9%) of the total number of infected females, who numbered (272) girls.

Aged 10-14

This group recorded the highest number of injuries in the Shatt al-Arab district, as the total number of injuries reached about (48) injured. Males occupied (37) injuries, constituting (8.9%) of the total number of male children, who numbered

(414) infected children, while females reached (11) infected girls, representing (3.6%) of the total number of infected females in this age group, who numbered about (305) infected .

6- Qurna District

A- (0-4) years

The records of the competent authorities showed that the total number of children infected in Qurna district for the period 2010-2023 is about (42) infected boys and girls, as the number of males (23) children constituted (5.4%) of the total number of (426) children infected with cancer in Basra Governorate within the studied period, while (19) infected girls constituted the same percentage (5.4%) of the total number of infected females, which is (355) infected girls for the same period.

B-(5-9) years

Male injuries accounted for (3.9%) of the total number of male injuries, as (14) injuries were recorded, while females accounted for (5.1%) of the total number of infected females within this age group, (13) injuries were recorded.

Aged 10-14

The total number of infected children in Qurna district was about (38) children with cancer for the period 2010-2023. The share of male injuries was (21) injuries, representing (5.1%) of the total number of infected males, while the number of females reached (17) children, representing (5.6%) of the total number of infected females within this category .

7- Al-Haratha District

A – (0 – 4) years

The data in the aforementioned table indicate that the total number of infected children in Al-Haratha district for a period of (14) years has reached (42) injuries within this category, which is almost equal between females and males, with (22) injuries to males, representing (5.2%) of the total males and (20) injuries, representing (5.6%) of the total number of infected females within this category .

B- (5-9) years

The total number of injuries in this category decreased compared to the previous category (0-4) years, reaching (33) injuries . Table (2) and injuries are almost equal with (17) injuries to males, constituting (5.1%) of the total , while females had (16) injuries, representing (5.9%) of the total .

C – (10 – 14) years

The number of cancer cases in this age group increased from their counterparts in the age group (5-9) years , as it reached (40) injuries. The share of male children was (24) injuries by (5.8%) of the total number of infected children in the study area, while the number of infected females reached (16) infected girls by (5.2%) of the total infected females.

8- Al-Deir District

A – (0-4) years

The percentage of male injuries reached (4%) of the total number of males infected recorded (17) injuries , while the percentage of females was (3.7%) of the total number of females with cancer within this category, as (13) injuries were recorded.

B – (5 – 9) years

The number of injuries in this age group decreased by (22) for the period 2010-2023. Females accounted for (4.4%) of the total, while males accounted for (3%) of the total infected males.

C – (10 – 14) years

It is clear from the previous table that the number of cancer patients within the age group (10-14) years has increased the number of patients for the age group (5-9) years to be less than the first age group (0-4) years, as the total number of the time period 2010-2023 was about (28) among males (15) cases, constituting (3.6%) of the total number of patients, and females (13) cases by (4.3%) of the total number of females with cancer .

9- Al-Faw District

A – (0 – 4) years

It was clear from the child cancer injury records that the FAO district recorded the lowest number of children with cancer in the study area and for all age groups. The number of infected children within this category reached about (9) injuries for the school period 2010-2023. The share of males was (7) injuries, constituting (1.6%) of the total infected children in Basra Governorate within the aforementioned category, while females recorded only two injuries, paralyzing (0.6%) of the total infected females for the above period. Refer to Table (1)

B – (5 – 9) years

The total number of infected children was about (10) injuries. The share of females was (6) injuries, which constituted (2.2%) of the total number of infected females, while males constituted (1.2%) of the total number of infected males. See Table (2)

10 – 14 %

This category recorded an equal number of injuries to what was recorded in the previous category (5-9) years by (ten) injuries, but females recorded an increase of (7) injuries, constituting (2.3%) of the total , while male injuries decreased to (3) injuries by (0.7%) of the total number of male injuries within this category, Table (3).

Seventh: Spatial variation of some types of cancer diseases for children in Basra Governorate for the period 2010-2023 In light of the above, we will address some of the briefness to the most prominent types of cancer diseases that have been studied, namely :

Bone Marrow Cancer:

Bone marrow cancer is known as a malignant disease that affects the hematopoietic cells, which are located inside the bone marrow. This type of cancer is one of the most common types among children, accounting for more than 30% of cancer cases in this age group. The types of leukemia vary in nature and methods of treatment, as well as in the extent of response to treatment. It is not considered a single disease, but different types ⁽⁷⁾. The initial symptoms of bone marrow cancer (especially acute leukemia) appear in the form of unexplained bruises under the skin, a constant feeling of fatigue and fatigue, as well as high temperature ⁽⁸⁾. Other general symptoms may include: sore throat, lack of appetite, pain in bones or joints, frequent infection as a result of weak immunity and high temperature (fever), swelling of the gums , weight loss, headaches, excessive night sweats, vomiting, vision and vision problems, general discomfort, pain in bones or joints, lymph nodes without pain ^(pain9).

The data of Table (4) indicate that this disease ranked first among infected children in Basra Governorate, as the total number reached about (372) injuries for the period 2010-2023, Basra District ranked first with (163) infected children, while Al-Zubair District came second with the number of injuries that reached (52) injuries, and the number in Abi Al-Khasib District decreased by (44) injuries until the Qurna and Shatt Al-Arab districts equaled the same number (24) injuries until Al-Fao District recorded the least cases of this disease until it reached (8) injuries only for the studied period.

Brain and Brain Cancer:

It is an abnormal and irregular division of brain cells, whether in the brain or the cerebellum, which causes compression of other parts of the brain and thus the loss or impairment of one of the senses. Its symptoms appear as brain tumors, whether benign or hidden, that cause similar symptoms, which vary according to where they occur in the brain. These include headaches, especially in the morning , nausea and vomiting , blurred vision, convulsions , weakness of some upper or lower limbs, or what is known as umbilical convulsion ⁽¹⁰⁾.

He ranked second in the number of injuries by (173) injuries, and before that, the judiciary of Basra and Zubair ranked first with (81 , 30) injuries in succession , so that the judiciary of Qurna and the city are equal to the same number (13)

injuries , until the Deir ez-Zor district recorded the least recorded cases of this disease with (3) injuries only for the period 2010-2023. Table (5)

Table (4) Spatial and temporal variation of bone marrow cancer in children of Basra Governorate for the period 2010-2023

Districts Years	Al-Basra	Al Zubayr	City District	Abu Al- Khasib District	Al Qarna	Shatt Al- Arab	Al Hartha	Al Dair	Al Faw	Total
2010	1	-	-	-	-	-	-	-	-	1
2011	6	3	1	1	-	2	2	-	-	15
2012	11	3	4	3	1	2	-	1	-	25
2013	4	-	-	-	2	-	-	-	1	7
2014	19	10	1	1	5	2	1	-	2	41
2015	13	2	2	3	1	-	1	-	-	22
2016	29	8	3	5	5	3	4	4	-	61
2017	12	3	4	1	1	3	1	1	-	26
2018	9	4	1	3	1	2	3	-	1	24
2019	19	4	3	5	1	5	2	2	-	41
2020	16	1	1	2	1	3	3	2	1	30
2021	7	5	1	3	2	-	1	-	2	21
2022	8	5	3	3	2	-	1	1	-	23
2023	9	4	3	3	1	2	-	-	1	23
Total	163	52	27	44	24	24	19	11	8	372

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

Adrenal lymphoma :

Tumors that arise at the expense of lymphocytes and are divided into two main types: Hodgkin's disease and non-Hodgkin's disease. Hodgkin's disease is the most common and the most dangerous⁽¹¹⁾ .

Table (5) Spatial and temporal variation of brain and brain cancer for children in Basra Governorate for the period 2010-2023

Districts Years	Al-Basra	Al Zubayr	City District	Abu Al- Khasib District	Al Qarna	Shatt Al- Arab	Al Hartha	Al Dair	Al Faw	Total
2010	3	-	-	1	-	1	-	1	-	6
2011	1	1	-	-	-	-	1	-	-	3
2012	4	1	-	1	1	1	-	-	-	8
2013	4	-	-	-	2	1	-	-	-	7
2014	3	2	1	2	2	-	-	-	-	10
2015	4	2	1	1	2	-	-	-	2	12
2016	14	3	1	1	3	2	2	-	1	27
2017	8	1	1	-	-	-	2	2	-	14
2018	4	-	1	2	-	-	2	-	1	10
2019	13	5	2	-	1	1	4	-	-	26
2020	6	4	-	1	-	1	-	-	-	12
2021	3	3	-	1	-	1	-	-	-	8
2022	9	3	2	-	1	-	-	-	-	15
2023	5	5	4	-	1	-	-	-	-	15
Total	81	30	13	10	13	8	11	3	4	173

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

Fatigue, fatigue, high temperature, sweating, especially at night , swelling of the lymph nodes, which is not usually painful, especially the lymph nodes in the neck or armpit , frequent fever or sweating during sleep , bleeding and bruising easily, bleeding gums, scarlet spots on the skin, or any red spots under the skin, weight loss without an obvious reason, bone or joint pain ⁽¹²⁾.

Table (6) indicates that the number of children infected in Basra Governorate with this disease amounted to (79). The highest number of injuries was recorded in Basra and Al-Zubayr governorates, amounting to (32, 17). The city and Abu Al-Khasib courts were equal to the same number of infected children (9) injuries until the number decreased to one injury in Al-Faw district, while Al-Qurna district did not record any significant injury to this disease for the period 2010-2023.

Bone Cancer:

An enlargement that appears in any part of the bone and is called a malignant tumor in the connective tissue, that is, it

is a cancer that forms and controls the bone, cartilage, muscle, fibrous tissue, or fatty or neural tissue ⁽¹³⁾. Cancer cells can be fragmented from the original tumor and move through the entire body through the blood or lymphatic system, although most cancer cells move through the bloodstream . When this happens, we can stick to a new location of the body and begin to grow, causing new tumors in the new place. A person with bone pain , bone enlargement, easy bone fracture in joint areas, fatigue and anemia, high fever, weight loss.

The records of the official authorities concerned with registering cancer injuries in Basra Governorate showed that this disease ranked fourth among the studied diseases, as the total number of injuries reached about (67) injuries. As usual, Basra District ranked first with about (28) injuries, Al-Zubair District ranked second with (19) injuries , and Al-Qurna and Shatt al-Arab Districts with the same number (6) injuries until Al-Haratha, Al-Deir and Al-Faw Districts recorded the least recorded districts for this disease with about one injury. Table (7)

Table (6) Spatial and temporal variation of adrenal and lymphoma cancer in children of Basra Governorate for the period 2010-2023

Districts Years	Al- Basra	Al Zubayr	City District	Abu Al- Khasib District	Al Qarna	Shatt Al- Arab	Al Hartha	Al Dair	Al Faw	Total
2010	-	-	-	-	-	-	-	1	-	1
2011	1	1	-	-	-	-	-	-	-	2
2012	2	1	-	3	-	-	-	-	-	6
2013	-	1	1	-	-	-	-	-	-	2
2014	7	1	2	2	-	1	1	-	-	14
2015	2	1	-	-	-	-	1	-	-	4
2016	10	2	-	-	-	-	1	-	-	13
2017	1	-	-	-	-	-	1	1	1	4
2018	1	-	-	-	-	-	-	-	-	1
2019	4	5	3	2	-	-	-	-	-	14
2020	-	2	3	-	-	1	-	-	-	6
2021	3	1	-	1	-	1	-	-	-	6
2022	1	1	-	1	-	-	1	-	-	4
2023	-	1	-	-	-	1	-	-	-	2
Total	32	17	9	9	-	4	5	2	1	79

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

Connective, subcutaneous and soft tissue cancers

A type of cancer that arises in the soft tissues of the body except bones and organs. It can occur in any part of the body, but it is most common in the arms, legs, chest, abdomen, bladder, head, nerves, fatty tissue, smooth muscles, connective tissue, fibrous tissue and blood vessels .

Table (7) Spatial and temporal variation of bone cancer for children in Basra Governorate for the period 2010-2023

Districts Years	Al-Basra	Al Zubayr	City District	Abu Al-Khasib District	Al Qarna	Shatt Al-Arab	Al Hartha	Al Dair	Al Faw	Total
2010	-	-	-	-	-	-	-	-	-	-
2011	2	1	-	-	-	-	-	-	-	3
2012	-	1	-	-	-	-	-	-	-	1
2013	-	-	-	-	-	-	-	-	-	-
2014	5	5	-	1	-	-	-	-	-	11
2015	1	1	-	-	-	-	-	-	-	2
2016	6	3	-	-	2	-	1	-	-	12
2017	-	-	-	-	1	-	-	-	-	1
2018	-	1	-	-	-	-	-	-	1	2
2019	6	2	3	1	1	4	-	1	-	18
2020	3	-	-	-	-	-	-	-	-	3
2021	3	-	-	-	2	1	-	-	-	6
2022	1	1	-	-	-	1	-	-	-	3
2023	1	4	-	-	-	-	-	-	-	5
Total	28	19	3	2	6	6	1	1	1	67

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

The affected person suffers from noticeable swelling and pain if the growth puts pressure on the nerves or muscles ⁽¹⁴⁾

The results of Table (8) indicate that the injuries of this disease were the lowest by (26) injuries for the period 2010-2023. The district of Basra and Zubair occupied about (9 , 7) injuries to occupy the third place in the district of Qurna

Table (8) Spatial and temporal variation of connective, subcutaneous and soft tissue cancer for children in Basra Governorate for the period 2010-2023

Districts Years	Al-Basra	Al Zubayr	City District	Abu Al-Khasib District	Al Qarna	Shatt Al-Arab	Al Hartha	Al Dair	Al Faw	Total
2010	2	-	-	-	-	-	-	-	-	2
2011	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-
2013	-	-	1	-	-	-	-	-	-	1
2014	1	-	-	-	1	-	1	-	-	3
2015	-	1	1	-	-	-	-	-	-	2
2016	1	2	-	-	1	-	-	-	-	4
2017	-	1	-	-	-	-	-	-	-	1
2018	1	1	-	-	-	-	-	-	-	2
2019	4	1	-	-	-	-	-	2	-	7
2020	-	1	-	-	-	1	-	-	-	2
2021	-	-	-	-	-	1	-	-	-	1
2022	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	1	-	-	-	-	1
Total	9	7	2	-	3	2	1	2	-	26

Source: Republic of Iraq, Ministry of Health, Basra Governorate Health Department, Cancer Control Division, Unpublished Data, 2024

There were three injuries, so that the districts of the city, the Shatt al-Arab and the monastery were equal to two injuries, while the districts of Abu al-Khasib and FAO did not record any significant injuries.

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