

Cancer in Salahdeen Governorate during (2021-2023)

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Abstract

Cancer incidence and its burden is increasing in Asian countries, therefore it is important to know the commonest cancers and their burden in Iraq. This study aimed to know the commonest cancers in Salahdeen governorate with their pattern from 2021-2023. A retrospective study was conducted in Salahdeen cancer center in Salahdeen governorate. The data was collected from patients' records and the cancer registration unit in the center. The data of cancer patients over 3 years (2021-2023) were reviewed and interpreted. The incidence rate increased from 2021 28.7/100000 in 2021, to 50.9/100000 adult persons in 2023. The total number of cases, old and new, that received chemotherapy, hormonal or immunological therapy, was 2,961 cases in 2021, followed by 3,316 cases in 2022, and 6,075 cases in 2023. The most common cases in 2022 were breast cancer 99(39.6%), followed by colon cancer 26(10.4%), lung cancer 19(7.6%), and ovarian cancer 12(4.8%). The incidence rate was breast cancer 11.3/100000, colon 3/100000, lung 2.2/100000, stomach 1.3/100000. The most common cases among female patients were breast cancer 98 (56.6%), ovarian cancer 12(6.9%), colon cancer 10(5.8%) and uterine cancer 10(5.8%). The most common cancers among male patients were colon cancer 16(20.8%), lung cancer 11(14.3%), prostate 10(13%) and stomach cancer 5(6.5%).

The cancer cases show an increasing pattern with increased burden, and the top cancers are little different from other governorates in Iraq.

Key words: cancer epidemiology, rate of cancer, cancer trend

Introduction

Predictions show that there will be more than 35 million new cases of cancer in 2050, up 77% from 20 million in 2022[1]. In every nation on Earth, cancer is one of the top killers and a major obstacle to extending people's lives [2].

More than three-quarters of the 20.4 million premature deaths (occurring at the ages of 30-70 years) are due to non-communicable diseases (NCDs). For every 10 persons who die prematurely of NCDs, 4 die of cardiovascular disease (CVD), and 3 die of cancer [3].

In 2019, cancer ranked first or second in 112 out of 183 nations for deaths occurring before the age of 70, and third or fourth in another 23 nations, according to estimates from the World Health Organization (WHO) [3].

In 2018, there were estimated to be 9.6 million cancer-related deaths and 18.1 million new cases, according to various studies. Additionally, estimates indicate that Asia will account for more than half of the world's cancer fatalities and nearly half of all new cancer cases in 2018. Asia will be home to more than half of the world's cancer fatalities and nearly half of all new cancer cases [4].

The rapidly growing global cancer burden reflects both population ageing and growth, as well as changes to people's exposure to risk factors, several of which are associated with socioeconomic development. Tobacco, alcohol and obesity are key factors behind the increasing incidence of cancer, with air pollution still a key driver of environmental risk factors [1].

Breast cancer is the commonest cancer worldwide and in Iraq most of the breast cancer diagnosed at advanced stage 80.4 % of cases at stage 2-4 and 51 % of cases were consulted for complaints of mass, pain or discharge [5].

This study aimed to find the epidemiology and the most common cancer reported in Salahdeen governorate to be the data base for future planning in program development for cancer control.

Patients and Methods

A retrospective study was conducted in Salahdeen cancer center in Salahdeen governorate, with a total population of 1,595,235 in 2018. All cancer cases received treatment from Salahdeen center of cancer in the governorate. The cancer center was opened in 2019 in the governorate.

The data was collected from patients' records and the cancer registration unit in the center. The data of cancer patients of the 3 years (2021-2023) were reviewed and interpreted.

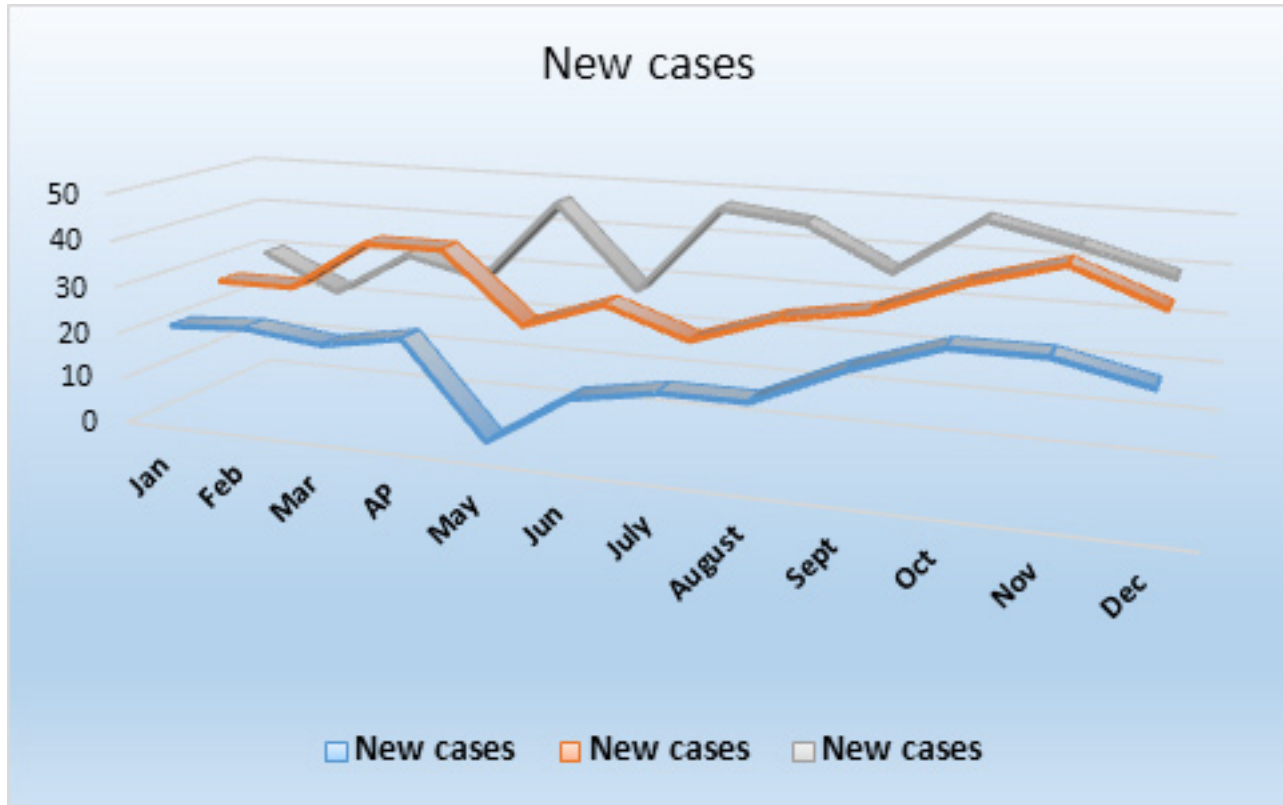
New cases were defined as the cases diagnosed for the 1st time; old cases were defined as cases previously diagnosed and on a therapeutic regimen. The total patients were defined as old plus new cases received in the center. The patient information was taken from the records and correlated with their demographic characteristics.

Statistical analysis was done using Software package of Social Sciences SPSS version 23 for the data entry and tabulation. Data are presented as tables and bar charts.

Results

The total newly diagnosed cancer cases show an increment from 2021 to 2023, 251, 386, and 445 case, respectively. The monthly distribution shows that cases increased from September to January in 2023 and in September 36 cases, in October 48 cases in November 44 cases, and in December 39 cases in 2022 it was 32, 39, 44, and 37, and in 2021 it was 25, 31, 31, 27, respectively as shown in Figure 1.

Figure 1: the newly diagnosed cases of cancer in Salahadeen cancer center



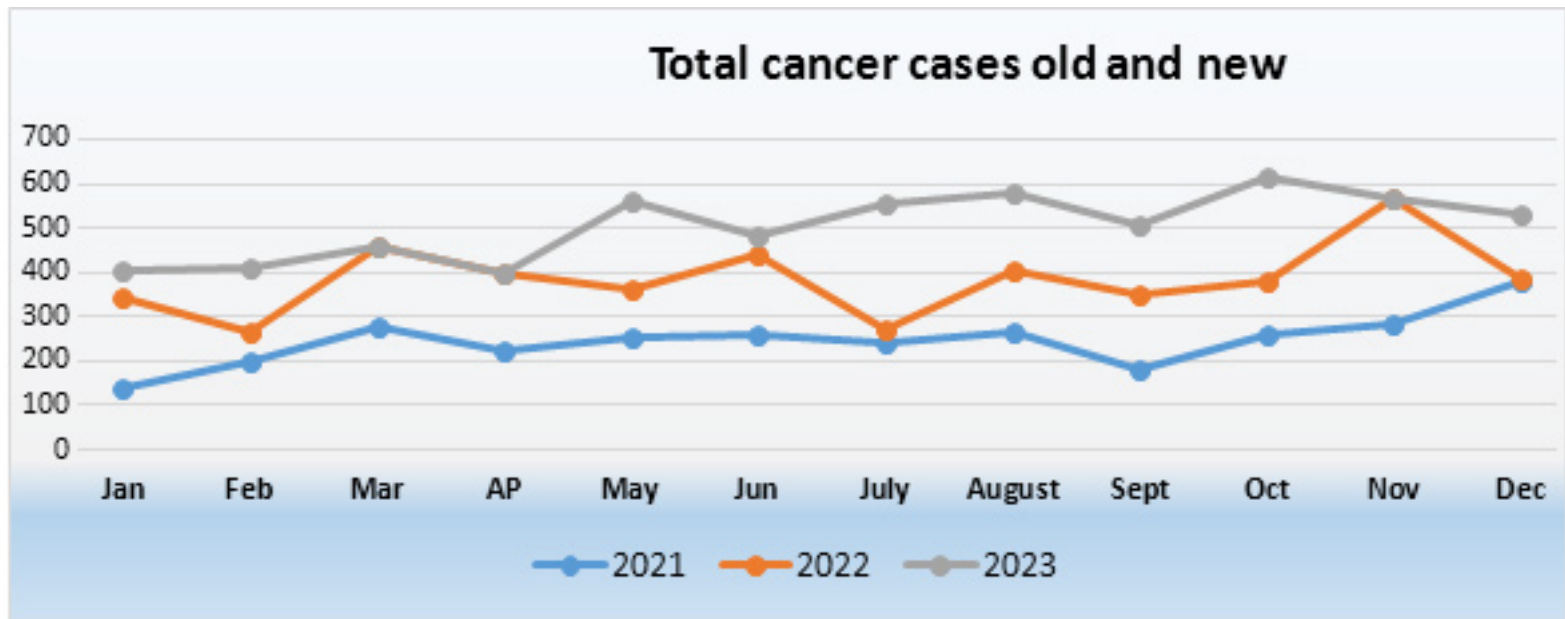
The incidence rate increased from 2021 28.7/100000 in 2021, to 50.9/100000 adult persons in 2023, as shown in Table 1.

Table 1: the incidence rate among adult population

Year of registration	No. of new cases among adults	Incidence rate per 100,000 (adult)
2021	251	28.7
2022	386	44.2
2023	445	50.9

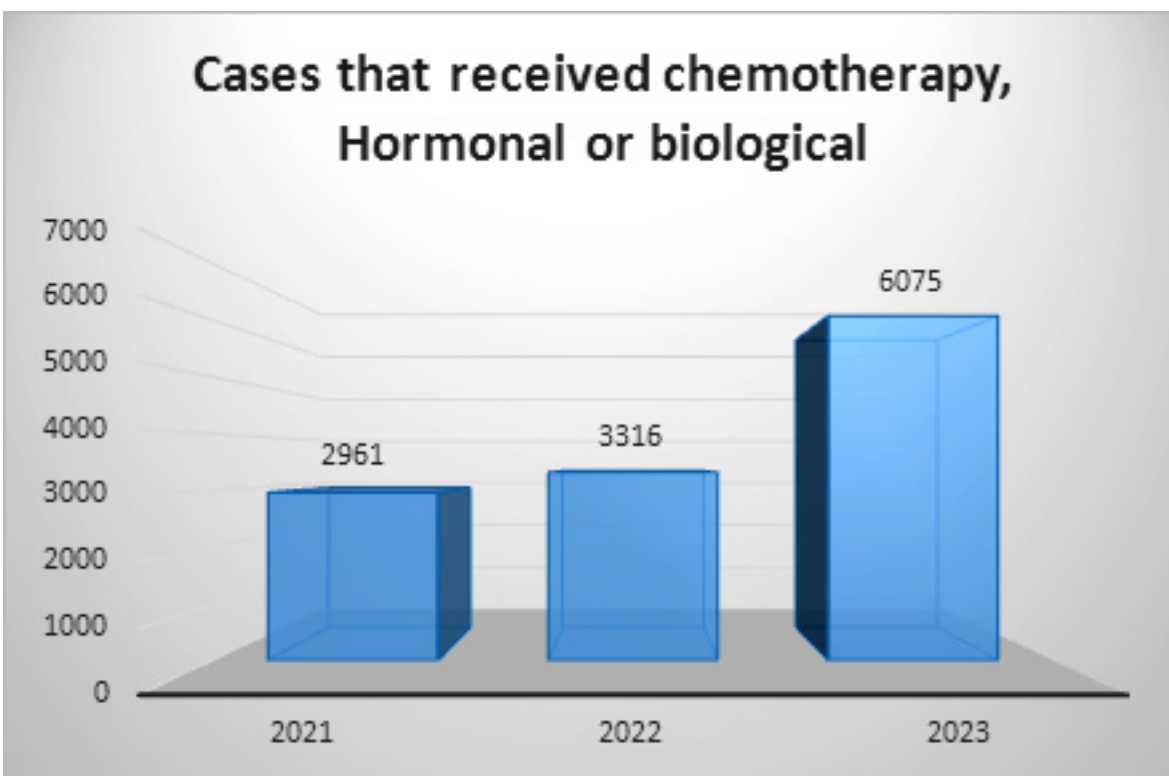
The total number of cases show an increased pattern from October to December in 2021 179, 286, and 381 respectively, in 2022 it was 378, 570, and 385 respectively, in 2023 it was 613, 570, and 531 respectively, as shown in Figure 2 .

Figure 2: the total cancer cases (newly diagnosed and old cases of cancer) in Salahadeen cancer center



The total number of old and new cases that received chemotherapy, hormonal or immunological therapy, was 2,961 cases in 2021, followed by 3,316 cases in 2022, and 6,075 cases in 2023, as shown in Figure 3.

Figure 3: the cases that received chemotherapy, hormonal, or immunological therapy in Salahadeen cancer center



The most common cases in 2022 were breast cancer 99 (39.6%), followed by colon cancer 26(10.4%), lung cancer 19(7.6%), and ovarian cancer 12(4.8%). The incidence rate was breast cancer 11.3/100000, colon 3/100000, lung 2.2/100000, and stomach 1.3/100000, as shown in Table 2.

Table 2. The new cancer cases according to site of cancer in 2022

Type of cancer	No.	%	Incidence rate per 100,000
Breast	99	39.6	11.3
Colon	26	10.4	3.0
Lung	19	7.6	2.2
Ovary	12	4.8	1.4
Stomach	11	4.4	1.3
Uterus	10	4	1.1
Prostate	10	4	1.1
Pancreas	8	3.2	0.9
Bone	6	2.4	0.7
Brain	6	2.4	0.7
others	43	17.2	4.9
Total	250	100	28.6

The most common cases among female patients were breast cancer 98 (56.6%), ovarian cancer 12(6.9%), colon cancer 10(5.8%) and uterine cancer 10(5.8%). The most common cancers among male patients were colon cancer 16(20.8%), lung cancer 11(14.3%), prostate 10(13%) and stomach cancer 5(6.5%), as shown in Table 3.

Table 3: The distribution of cancer cases according to sex

Type of cancer	Female		Male		Total	
	No.	%	No.	%	No.	%
Breast	98	56.6	1	1.3	99	39.6
Colon	10	5.8	16	20.8	26	10.4
Lung	8	4.6	11	14.3	19	7.6
Ovary	12	6.9	0	0.0	12	4.8
Stomach	6	3.5	5	6.5	11	4.4
Uterus	10	5.8	0	0.0	10	4
Prostate	0	0.0	10	13.0	10	4
Pancreas	5	2.9	3	3.9	8	3.2
Bone	2	1.2	4	5.2	6	2.4
Brain	2	1.2	4	5.2	6	2.4
others	20	11.6	23	29.9	43	17.2
Total	173	100.0	77	100.0	250	100

The most common cases among patients aged 16-45 years were breast cancer 24 (48%), ovarian cancer 5(10 %), colon cancer 4(8 %) and brain cancer 4(8 %). The most common cancers among patients aged >45 years were breast cancer 75(37.7%), colon cancer 22(11.1%), lung cancer 18(9 %), prostate 10(5 %) and stomach cancer 9(4.5%), as shown in Table 4.

Table 4: The distribution of cancer cases according to age

Type of cancer	< 15 years		16-45 years		>46 years	
	No.	%	No.	%	No.	%
Breast	0	0	24	48	75	37.7
Colon	0	0	4	8	22	11.1
Lung	0	0	1	2	18	9.0
Ovary	0	0	5	10	7	3.5
Stomach	0	0	2	4	9	4.5
Prostate	0	0	0	0	10	5.0
uterus	0	0	2	4	8	4.0
Pancreas	0	0	0	0	8	4.0
Bone	0	0	1	2	5	2.5
Brain	0	0	4	8	2	1.0
others	1	100	7	14	35	17.6
Total	1	100	50	100	199	100.0

Discussion

Cancer incidence in these countries is increasing rapidly due to changing demographics and increased exposure to various risk factors [6].

Iraq has different areas with different geographical and environmental states. This study shows the epidemiology of cancer in Salahdeen governorate during 2021-2023.

The incidence rate increased from 2021 28.7/100000 in 2021, to 50.9/100000 adult persons in 2023. This goes with previous studies done in Iraq with the total number of cases registered with all sources in 2007, 2008 and 2009 were 1444, 2081 and 2356 respectively[7].

The Eastern Mediterranean region has witnessed a marked increase in cancer incidence from 494,690 in 2005 to 722,646 in 2015, although the increment of increase varies depending on countries' economic status [8].

The rate of increase was moderate in low and middle income countries such as Afghanistan (47.2%), Djibouti (49.4%), Somalia (67.6%) and Yemen (49.4), Egypt (40.6%), Jordan (54.1%), Lebanon (78.2%), Morocco (45.3%), Pakistan (44.6%) and Sudan (44.7%). While the cancer incidence increased drastically in high-income countries such as Kuwait (79.6%), Oman (123.9%), Saudi Arabia (67.6%) and the United Arab Emirates (182.9%) [8].

The most common cases in 2022 were breast cancer 99 (39.6%). The incidence rate of breast cancer was 11.3/100000, followed by colon cancer 26(10.4%) with incidence 3/100000, lung cancer 19(7.6%) with incidence 2.2/100000, and ovarian cancer 12(4.8%) with incidence of 1.4/100000, and stomach cancer 11(4.4%) with incidence of 1.3/100000.

Aboud R A. et al in Basra 2020 found that the five most frequent cancers (breast cancer, lymphoma, lung and bronchus cancer, urinary bladder cancer and colorectal cancer) constituted 53.47% of all cancer cases in Basra [9].

The most common cases among female patients were breast cancer 98 (56.6%), ovarian cancer 12(6.9%), colon cancer 10(5.8%) and uterine cancer 10(5.8%). The most common cancers among male patients were colon cancer 16(20.8%), lung cancer 11(14.3%), prostate 10(13%) and stomach cancer 5(6.5%). This differs from a previous study in Karbala by AL-Janabi A A et al 2017 who found that both genders had shown high prevalence and incidence rate of some cancer diseases, including bladder cancer, lymphoma, and colorectal cancer. Other cancers were observed with a higher value in males than in females such as Renal cell carcinoma, and bone cancer and prostate cancer in males. Female organs affected by cancer were ovarian cancer and uterine cancer[10].

Abood R A. et al (2020) in Basra found that in adult males, urinary bladder cancer was the most common type, representing 11.94% of cancers, followed by lung and bronchus cancer (10.86%), lymphoma (8.56%) and colorectal cancers (8.44%). In adult females, breast cancer was the most common representing 45.42% of cancers, followed by lymphoma (6.13%), ovarian cancer (5.12%) and uterine cancer (4.21%) [9].

In Arab countries, the incidence rate of breast cancer is increasing rapidly due to rapid industrialization and both delayed and reduced fertility [11]. Other contributing risk factors leading to the increasing incidence of breast cancer in Arab countries include obesity, family history, hormonal therapy, post-menopause status, lack of education and no history of breastfeeding [12].

In the current study prostate cancer was the third most frequent cancer among males (13%). This differs from other studies that found that prostate cancer is the most frequent cancer amongst males in the USA and Europe [13,14]. This difference may be related to the absence of prostate cancer screening programs as found in USA and Europe, with screening leading to early diagnosis of the cases.

The most common cases among patients aged 16-45 years were breast cancer 24 (48%), ovarian cancer 5 (10%), colon cancer 4 (8%) and brain cancer 4 (8%). The most common cancers among patients aged >45 years were breast cancer 75 (37.7%), colon cancer 22 (11.1%), lung cancer 18 (9%), prostate 10 (5%) and stomach cancer 9 (4.5%). The current study shows that most of the cases were adult cases because the cancer center in Salahdeen lacks a pediatric oncologist. The increasing rates of cancer that were observed is really under the real numbers of cases as the incidence was lower than that reported by the cancer registration in Iraq. This may be related to the fact that the center opened in 2020 and all cases before that time needed to be registered and diagnosed in other Iraqi centers.

Conclusion

The incidence and burden of cancer is increasing in the last years in Salahdeen as in other governorates in Iraq. This puts an increased burden of cancer in the country, infrastructure and the patient's family, therefore there is urgent need to establish cancer screening programs and preventive measures for decreasing the modifiable risk factors of cancer in Iraq.

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