

報 告

Incidence of Cancer in Basrah/ Iraq : Update Review.

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ABSTRACT

Basrah, Southern of Iraq, has been subjected to massive environmental damage as consequences of wars, economic embargo and lack of resources to protect or restore safe environment. The cancer incidence rate in Basrah has increased over the last 2 decades. Globally the cancer rates are set to increase at an alarming rate. Basrah Cancer Research Group (BCRG) initiated a project to improve registration, identify risk factors, improve care and quantify environmental pollution. BCRG published a report contains the best parameters and epidemiological analysis of incident cancer in Basrah over the period of 2005–2008 years. The crude incidence rate of cancer in Basrah was estimated at 74.3 per 100 000 population for the year 2005 which was obviously higher than the national figure 54.26 per 100,000 population, such discrepancy might reflect under-registration of new cancer cases at national level and/ or the risk of cancer in Basrah was higher than the national risk. The five leading cancers in males were urinary bladder cancer, lymphoma, bronchus and lung, leukemia and then colorectal cancers. In contrast to the World's registry, prostate cancer was not a major cancer in Basrah. In females, breast cancer was the commonest, followed by lymphoma, uterus and cervix, leukemia and urinary bladder. The most commonly diagnosed cancers in



men worldwide were lung cancer, followed by prostate, colorectal, stomach and liver cancers, whereas in females the commonest was the breast cancer, then uterine-cervix, colorectal, lung and stomach. Regarding the age specific rates, higher rates of cancer noticed in male children compared to female children up to 14 years. However, the observation that cancer incidence in young (25–44 years) and middle-aged (45–64 years) population was significantly higher in women than men in Basrah. At age of 75 and older, cancer was diagnosed more than twice as often in men as in women due to higher incidence of cancers of urinary bladders, lung, gastrointestinal, skin, larynx and lymphoma. The ASR of cancer in Basrah both for

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males and females (107.7 and 116.6) was obviously lower than the registry of the World (203.8 and 165.1), Western Asia (152.5 and 119.7), Qatar (179.6 and 168.6), Bahrain (156.7 and 157.6), Kuwait (137.2 and 125.8) and Jordan (124.3 and 135.1). But it was almost within the average when compared to that of Iran (110 and 98) and higher than Kurdistan region of Iraq (89.8 and 83.0), Saudi (87.8 and 74.8) and Oman (90.4 and 104.1). Trend of cancer in Basrah showed a clear rise in incidence rate which was consistently higher during 2005–2008 when compared to 1995 and the percentage of rise ranged from 28.6% for larynx cancer to 197.5% for breast cancer.

In conclusion, the increased cancer in Basrah is part of worldwide phenomenon but variation in incidence rates of all-sites cancer and particular type cancer in different regions need to be investigated thoroughly the possible etiological factors.

BACKGROUND

In Basrah, South of Iraq, the cancer incidence rate has increased over the last 2 decades. Previous reports^(1–3) clearly revealed that it was a true increment out of the artificial factors like growth of population or the improvement in the diagnosis and or registry system though these were contributing factors. Globally, the World Cancer Report tells us that cancer rates are set to increase at an alarming rate. It also revealed that cancer has emerged as a major public health problem in developing countries matching its effect in industrial nations⁽⁴⁾. This review will discuss the updated incidence rates of cancer in Basrah and whether it was a part of a world phenomenon or out of it.

LOCAL SITUATION AND ACTIVITY

Iraq as whole and the Southern region including Basrah in particular has been subjected to massive environmental damage as consequences of wars, economic embargo and lack of resources to protect or restore safe environment. As a result, the health status of the population was under high risk of various diseases including cancer. In order to approach the reality about cancer in Basrah, we (the Basrah Cancer Research Group-BCRG-a group of medical and environmental researchers) initiated a four-legged project in 2005 to improve registration, identify risk factors, improve care and quantify environmental pollution. Cancer in Basrah 2005–2008⁽⁵⁾, a report by BCRG contains the best parameters and epidemiological analysis of incident cancer in Basrah over the period of these four years. The report was based on the collection of data from the following institutions: Oncology and Hematology Center in Basrah Teaching Hospital; Cancer Registration Section at the Department of pathology, College of Medicine University of Basrah; Pediatric Oncology Unit; Center for Cancer Control in Health Directorate; Center for Early Detection of Breast Cancer; and data from some specialists doctors who keep their own collection of cancer cases as part of their routine clinical work. Cases that were identified by various sources, were entered first on Excel spreadsheets in most centers, or identified from their original documents and entered by BCRG on Excel. Then, the Excel files were merged, matched and checked for any duplication. The statistical analysis was carried out with an SPSS (Statistical Package for Social Science-Version 15) program. Estimation of epidemiological profile of cancer in Basrah was done after exclusion of the cases from other governorates.⁽⁵⁾

Information related to population of Basrah were based on data available with Basrah Health Authorities, the electorate lists and the Statistical Office in Basrah⁽⁶⁾. The age structure was based on pooled results of 10 household surveys carried out in different parts of Basrah governorate during the last 12 years.⁽⁷⁻⁸⁾

TOP TEN CANCERS IN IRAQ AND BASRAH

In Iraq, according to various estimates, somewhat between 15,000 to 20,000 new, all sites cancer, cases might occur annually with 50% of them die within the first year after diagnosis.⁽⁵⁾ Based on National Cancer Board Registry 2005, the number of all sites combined cancer cases was 15172 with incidence rate of 54.26 per 100,000 Iraqi population. The top ten cancers represented 65.88% of registered cases as shown in Table 1.⁽⁹⁾

Table 1⁽⁹⁾ Top ten cancer in Iraq 2005

Primary site	No. of cases	Male	Female	% of total	IR/10 ⁵ pop.
Breast	2589	155	2434	17.06	9.26
Bronchus & lung	1284	982	302	8.46	4.59
Urinary bladder	1063	835	228	7.01	3.80
Leukemia	964	535	429	6.35	3.45
Brain & Nervous system	940	524	314	6.20	3.36
Lymphoma (NHL)	838	524	314	5.52	3.00
Colorectal	716	375	341	4.72	2.56
Stomach	548	308	240	3.61	1.96
Larynx	535	403	132	3.53	1.91
Skin	518	308	210	3.41	1.85
Subtotal	9995	4930	5065	65.88	35.74
All sites	15172	7505	7667	100.00	54.26

Estimated population of Iraq in 2005 : (27 962 968)

The crude incidence rate of cancer in Basrah was estimated at 74.3 per 100,000 population for the year 2005⁽²⁾ which was obviously higher than the national figure 54.26 per 100,000 population. Such discrepancy might reflect under-registration of new cancer cases at national level and/or the risk of cancer in Basrah was higher than the national risk.⁽⁵⁾ Therefore, the comparative data used in this review based on the local Basrah registry rather than the National registry and to compare with the region and World figures.

Table 2 shows the top ten cancers in Basrah during the four years 2005–2008 with a crude incidence rate of 70.7 cases per 100,000 population.

Breast cancer was the most frequent individual cancer with an annual incidence of 11.9 per

Table 2⁽⁵⁾ Top ten cancers in Basrah during 2005–2008.

Primary site	Average No. of annual cases	Male	Female	% of total	IR/10 ⁵ pop.
Breast	268	11	257	16.8	11.9
Urinary bladder	137	102	35	8.6	6.0
Lymphoma (NHL & HL)	112	68	44	7.0	5.0
Bronchus & Lung	101	76	25	6.3	4.5
Leukemia	81	46	35	5.1	3.6
Skin	69	35	34	4.3	3.1
Colorectal	63	36	27	4.0	2.8
Bone	58	34	24	3.6	2.6
Brain & Nervous System	58	33	25	3.6	2.6
Stomach	56	30	26	3.5	2.5
Subtotal	1003	471	532	62.8	44.6
All sites	1594	741	853	100.0	70.7

100,000 population and represented 16.8% of all incident cancers in Basrah. Among females the incidence rate was 23.1 /100,000 (30.2% of female cancers) and the age standardized incidence rate (ASR) was 32.6 /100,000 females. In the Gulf Cooperation Council (GCC) states, breast cancer is the most common cancer accounted to 11.6% from all cancers and 23.2% from cancers among females. Bahrain reported the highest incidence of breast cancer (ASR was 53.4), followed by Qatar (48.2), Kuwait (46.6), UAE (22.8), Oman (17.5), and KSA (14.8).¹⁰ According to Jordan national cancer registry 2007, breast cancer accounting for 19.1% (35.8% of females) of the total new cancer cases and the ASR was 48.9 per 100 1000 females.¹¹ Asian countries, such as Japan, have the low rates of breast cancer (8.5/ 100,000 females), while Western countries have cancer rates that are many times higher⁽¹²⁻¹³⁾

Among males in Basrah, urinary bladder cancer was the leading followed by lymphoma (both Non-Hodgkin's and Hodgkin's), bronchus and lung, leukemia and then colorectal cancers. In contrast to the World's registry, prostate cancer

was not a major cancer in Basrah. In females, breast cancer was the commonest, followed by lymphomas, uterus and cervix, leukemia and urinary bladder⁽⁵⁾. This pattern was different from neighbor countries and World's pattern. In comparison with Nationals of the GCC states, Non-Hodgkin's Lymphoma (NHL) was the commonest in males followed by colorectal cancer, leukemia, lung, liver and prostate cancers, whereas in females, breast cancer was the commonest cancer followed by thyroid cancer, colorectal, NHL, and leukemia¹⁰. The most commonly diagnosed cancers in men worldwide were lung cancer, followed by prostate, colorectal, stomach and liver cancers, whereas in females the commonest was the breast cancer, then uterine-cervix, colorectal, lung and stomach.¹⁴

AGE SPECIFIC INCIDENCE RATES OF CANCER IN BASRAH

Although cancer occurs at all ages, it disproportionately strikes individuals in the age group 65 years and older and this was true in Basrah as shown in Figure 1.

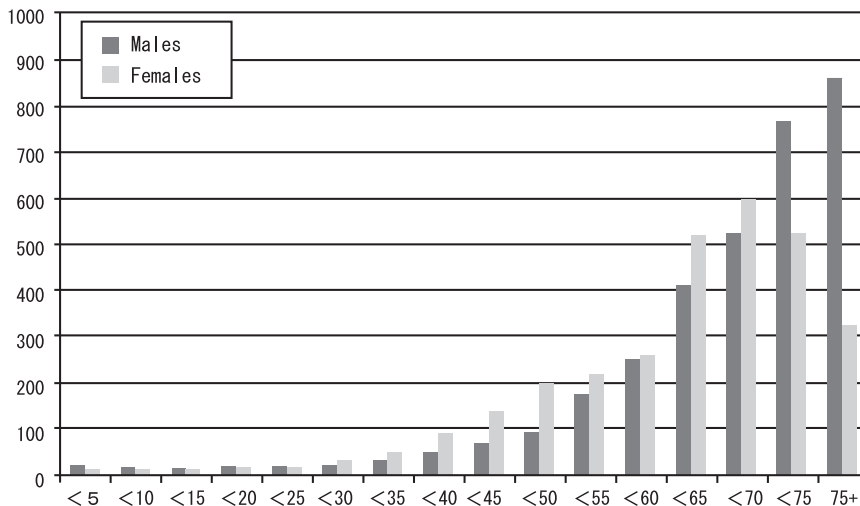


Figure 1 (5) Age specific incidence rates (per 100,000 population) of all cancers in Basrah 2005-2008 by gender.

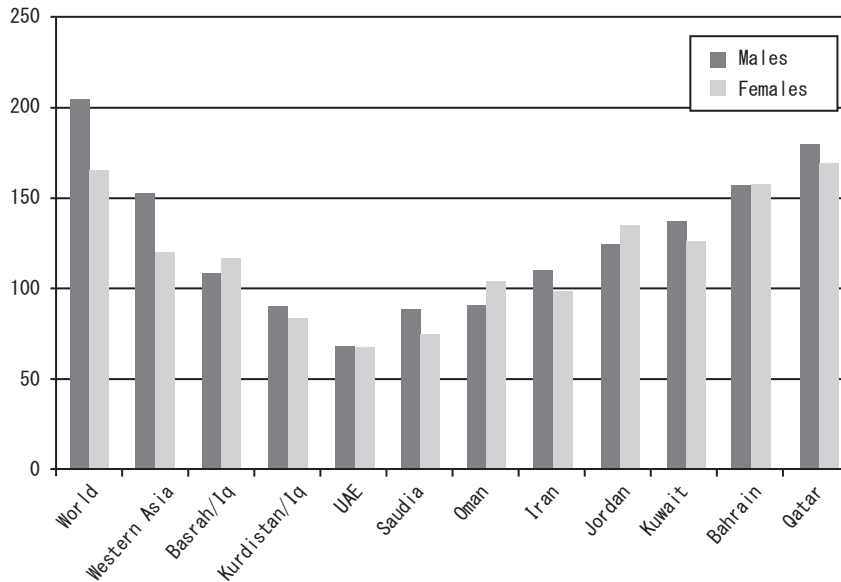


Figure 2^(5, 10, 11, 14, 17, 18) ASR in Basrah and Kurdistan regions of Iraq compared to neighbor countries and World.

Regarding the age specific rates, higher rates noticed in male children compared to female children up to 14 years,⁽⁵⁾ that was probably due to the high frequency of hematologic malignancies in particularly acute leukemia in children with male preponderance.⁽⁵⁾ However, the observation that cancer incidence in young (25–44 years) and middle-aged (45–64 years) population was significantly higher in women than men in Basrah was explained by the higher incidence of breast cancers. At age of 75 and older, cancer was diagnosed more than twice as often in men as in women due to higher incidence of cancers of urinary bladders, lung, gastrointestinal, skin, larynx and lymphoma.⁽⁵⁾

CANCER IN BASRAH AND SURROUNDINGS OF IRAQ

There are striking variations in the risk of different cancers by geographic area. Most of the international variation is due to exposure to known or suspected risk factors related to lifestyle or environment, and provides a clear chal-

lenge to prevention.⁽¹⁶⁾ Figure 2 shows the ASR of cancer per 100,000 populations in Basrah and Northern Kurdistan region in Iraq as compared to other neighbor countries and World's registry.

The ASR per 100,000 population of cancer in Basrah both for males and females (107.7 and 116.6) was obviously lower than the registry of the World (203.8 and 165.1), Western Asia (152.5 and 119.7)⁽¹⁴⁾, Qatar (179.6 and 168.6), Bahrain (156.7 and 157.6), Kuwait (137.2 and 125.8)⁽¹⁰⁾ and Jordan (124.3 and 135.1)⁽¹¹⁾. On the other hand, ASR for cancer in Basrah was almost within the average when compared to that of Iran (110 and 98)⁽¹⁷⁾, but higher than Kurdistan region of Iraq (89.8 and 83.0)⁽¹⁸⁾, Saudi (87.8 and 74.8) and Oman (90.4 and 104.1).

TRENDS IN INCIDENCE RATES OF CANCER IN BASRAH

To give crude estimates of the trend in cancer incidence rates in Basrah, BCRG used the data

Table 3 Comparison between cancer specific incidence rate for the years 1995 and 2005–2008.

Cancer	1995	2005–2008	% Change
Breast	4.0	11.9	+197.5
Urinary bladder	2.5	6.0	+140.0
Lymphoma (NHL & HL)	2.2	5.0	+127.3
Lung & Bronchus	2.1	4.5	+114.3
Leukemia	2.3	3.6	+ 56.5
Skin	2.4	3.1	+ 29.2
Colorectal	1.7	2.8	+ 64.7
Stomach	1.2	2.5	+108.3
Brain & CNS	0.9	2.6	+188.9
Larynx	1.4	1.8	+ 28.6

which were collected by the cancer registration section at department of pathology. The year 1995 was selected, because of availability of data on the leading cancers, to compare with the annual incidence rates during 2005 to 2008. The rise in incidence of cancer was clear. However, when a comparison was made between cancer specific rates for ten leading cancers for the years 1995 and 2005–2008, it was very clear that the annual incidence rates were consistently higher during 2005–2008 as shown in Table 3.

The percentages of rise in the incidence rates ranged from 28.6% in case of larynx cancer to 197.5% in case of breast cancer. The change rise in the over all incidence rate and in the incidence rates of selected cancers could reflect artificial rise due to improved diagnosis, improved notification and recording of cases but part of this rise was expected to reflect a real increase in the risk of cancer in Basrah.⁽³⁾

CONCLUSION

In Basrah, Southern of Iraq, which has been exposed to massive environmental damage, the cancer rates has increased obviously. The BCRG has improved the registration of new cancer

cases and the achieved report was the most reliable reflect of real cancer incidence in Basrah. Despite of that, the ASR of all sites cancer in Basrah was still within the average of regional registry and much lower than world registry. The variation also exists in the frequency order of the most common cancers both in males and females when compared to regional and world registry. Breast cancer was the leading cancer in Basrah and the neighbor regions but the ASR was variable between the regions. Consequently, we can say that the increased cancer in Basrah is part of a global phenomenon. But the variation in incidence rates of all-sites and the particular type of cancer between the neighbor regions could be attributed to environmental factors, human behavior, habits and life style. Therefore, the local variables in Basrah need to be investigated thoroughly to address the possible etiological factors, and that was the next step of BCRG project.

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2004年には SICN が実施したイラクの白血病の少年と 2 名の医師を名古屋大学で治療するプロジェクトに協力した。そのとき来日した医師の 1 人である Asaad A.Kharaf 氏に「本誌 Vol. 17 No. 1」（2005年）に Cancer Trend In Basrah After Gulf Wars を寄稿いただいた。本論文は、その後の Basrah の状況について報告いただいたものである。（編集部）