

PATTERN OF ADMITTED CANCER CASES IN BASRAH GENERAL HOSPITAL DURING 2005-2008

Ikram M. Abbas¹, Narjis AH Ajeel²

ABSTRACT

Background: At the present time, a national strategy is adopted in Iraq by the Iraqi Cancer Board to control cancer. The strategy consists of six approaches to deal with the problem of cancer in Iraq. One of these approaches is to establish a population based cancer registration. Among the important sources of data for such registry are hospital based cancer registries.

Objective: To evaluate the cancer registry in Basrah General Hospital over a 4-year period (2005-2008) and to study the pattern of cancer cases admitted to the same hospital during the same period.

Patients & methods: A descriptive retrospective record based study involving all diagnosed cancer cases admitted to Basrah General Hospital over a four-year period (2005-2008) was carried out. Cancer cases were identified by examining inpatients records that are available in each of the studied wards. Further the information related to each cancer case derived from the inpatients records and compared with data recorded and compiled by the cancer registration unit in Basrah General Hospital. This was performed to assess the reliability and adequacy of hospital cancer registry as an important source of data about cancer cases diagnosed or admitted to the hospital.

Results: The total admitted cancer cases identified during 2005-2008 were 1207. Male cancer cases represented 61.4% of the total cases, while females represented 38.6%. The most frequent age group among males was 65-74 years compared to a younger age group for females (45-54 years). Majority of patients were inhabitants of Basrah governorate (70.8%). The total admitted cancer cases during 2005, 2006, 2007 and 2008 were 263, 288, 353 and 303 respectively. The most frequent type of admitted cancer cases to Basrah General Hospital was urinary bladder cancer forming 43.8% of total admitted cases. It ranked as the first male cancer accounting for 53.9% of total males' cases. Breast cancer ranked as second type of cancer (11.9%), it was the first female cancer representing 28.1% of total females' cancer. The effort of the hospital registration unit to register cancer cases was very limited with a very low coverage for all sorts of cancer during 2005-2008.

Conclusion: while interesting information on cancer pattern has been derived from Basrah General Hospital data, they are still incomplete and may represent a selective and biased sample of the patient population.

INTRODUCTION

Cancer is the second most common cause of death in the western world after cardiovascular diseases.^[1] The International Agency for Research on Cancer (IARC) estimated that globally nearly 11 million new cases of cancer, 6.7 million deaths and 24.6 million persons live with cancer (within 5 years of diagnosis) in the year 2002.^[2] In developing countries cancer is emerging as a public health problem. This has been attributed to the rapid improvement in the field of health care, in addition to the control of communicable diseases, increase life expectancy at birth and the rapid socio-economic changes resulting in modified life style.^[3] In Iraq, cancer is the third leading cause of death and the seventh leading cause of morbidity. In a study conducted by

MOH of Iraq over a 5-year period (2000-2004), the top 5 primary tumors were: breast, lung & bronchus, leukemia, bladder, and brain & CNS.^[4] In Basrah, previous research work and growing impressions among doctors and lay people suggest that cancer is increasing in Basrah after the 1991 war. However, these suggestions faced a lot of criticism for being inadequate to prove real increase in cancer risk simply because of incomplete case registration and/or inaccurate population denominators. Some of the results, however, are substantive enough to convince that the evidence on cancer increase is fairly reasonable. Yacoub et al 1999^[5,6] reported an increasing incidence of malignancies over the period extending from 1990-1997. Habib et al^[7] reported an annual

¹MBChB, Basrah Directorate General of Health.

²Professor, MBChB, Msc, PhD, Department of Community Medicine, College of Medicine, University of Basrah.

incidence rate of cancer in Basrah for the year 2005 at 74.3 per 100000 population. In a more recent report they presented a comprehensive account on cancer in Basrah over the period 2005-2008 and estimated the annual crude incidence rate at 70.7 per 100000 population. They suggested increase rates of certain cancers such as breast cancer and leukemia.^[8] At the present time, a national strategy is adopted in Iraq by the Iraqi Cancer Board to control cancer. The strategy consists of six approaches to deal with the problem of cancer in Iraq.^[9] One of these approaches is to establish a population based cancer registration. Among the important sources of data for such registry are hospital based cancer registries. Therefore, in Basrah four hospital based registration units were established since 2004 (*in Al-Sadr teaching hospital, Basrah general hospital, Basrah maternity and children hospital, and Al-Mawanie hospital*). Each unit registers new cancer cases diagnosed at and/or admitted to the hospital.^[9] Therefore, the present study was carried out to evaluate the cancer registry in Basrah General Hospital over a 4-year period (2005-2008) and to study the pattern of cancer cases admitted to the same hospital during the same four-year period.

PATIENTS AND METHODS

This is a descriptive, retrospective, record-based study involving all diagnosed cancer cases admitted to Basrah General Hospital over four-year period (2005-2008). All cancer cases admitted to the general surgery, ENT, orthopedics, and medical wards, during the study period were included in the study. In

addition, the records of the cancer registration unit in Basrah general hospital for the same period were also examined. Cancer cases were identified by examining inpatients records that are available in each of the studied wards. For each case the following information were abstracted: personal identifiers and demographic information (*name, age, sex and place of residence*); tumor details (*date of admission, topography*). The information related to each cancer case derived from the inpatients records were compared with data recorded and compiled by the hospital cancer registration unit. This comparison was made to assess the reliability and adequacy of hospital cancer registry as an important source of data about cancer cases diagnosed or admitted to the hospital. The data were analyzed using SPSS (*Statistical Package for Social Sciences computer file version 15*). Total numbers and relative frequencies were used for analysis and comparisons. X²-test was used to find out statistical associations, P-value <0.05 was considered significant.

RESULTS

Age and sex distribution

During the four-year study period (2005-2008), the total number of cancer cases admitted to Basrah General Hospital were 1207, 741 were males forming 61.4 %, while the remaining 466 were females forming 38.6% of total cases. Overall male to female ratio was (1.6:1). The most frequent age group among males was 65-74 years compared to a younger age group for females (45-54 years). (Table-1).

Table 1. Distribution of cancer cases to Basrah General Hospital (2005-2008) according to age and sex.

Age (years)	Males		Females		Total	
	No.	%	No.	%	No.	%
<15	18	2.4	16	3.4	34	2.8
15-24	35	4.7	30	6.4	65	5.3
25-34	46	6.2	47	10.0	93	7.7
35-44	51	6.8	74	15.8	125	10.3
45-54	115	15.5	127	27.2	242	20.0
55-64	194	26.1	84	18.1	278	23.2
65-74	208	28.0	73	15.6	281	23.2
75+	74	9.9	15	3.2	89	7.3
Totals	741	100.0	466	100.0	1207	100.0

χ^2 test=96.997 df=7 P-value < 0.001

Place of residence

The majority 855(70.8%) of admitted cancer cases were inhabitants of Basrah governorate, followed by 208(17.3%) from Thi-Qar, 119 (9.8%) from Missan, and the remaining 25 patients (2.1%) were from other governorates. (Figure-1)

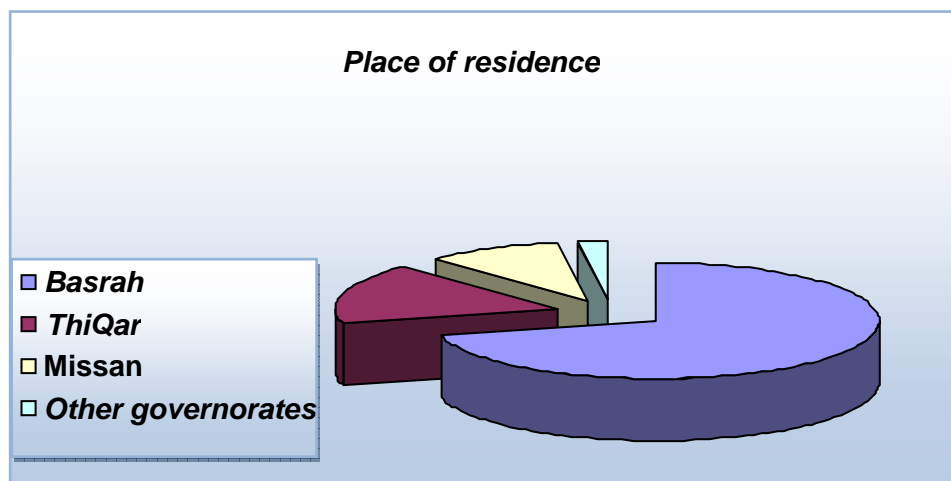


Figure 1. Distribution of cancer cases to Basrah General Hospital (2005-2008) according to place of residence.

Time trend

The number of cancer cases admitted to Basrah General Hospital increased from 263 cases in 2005 to 353 in 2007, and then the number decreased to 305 cases in 2008. Females showed a constant increase in the number of admitted cancer cases over the-four year period.

The number of cases for females increased from 60 cases in 2005 to 149 cases in 2008 (about 2.5 fold increase). Males didn't show a constant trend for the number of admitted cancer cases over the four-year period. (Table-2).

Table 2. Distribution of admitted cancer cases to Basrah General Hospital (2005-2008), according to year of admission.

Year of admission	Males		Females		Total	
	No.	%	No.	%	No.	%
2005	203	27.4	60	12.9	263	21.8
2006	175	23.6	113	24.2	288	23.9
2007	209	28.2	144	30.9	353	29.2
2008	154	20.8	149	32.0	303	25.1
Total	741	100.0	466	100.0	1207	100.0

χ^2 test=42.71 df=3 P-value < 0.001

Site (topography) of admitted cancer cases

(Table-3), shows all admitted cancer cases to Basrah General Hospital for the years 2005-2008. Urinary bladder cancer was the leading cancer and represented 43.8% of all admitted cancer cases; followed by breast cancer (11.9%), stomach cancer (5.7%), colon-rectal

cancer (5.3%), and laryngeal cancer (5.2%). The leading cancers in males were urinary bladder, larynx and stomach, cancers while the leading cancers in females were breast, urinary bladder and colon-rectal cancers. Tables (4) and (5) respectively.

Table 3. Anatomical site of admitted cancer cases, Basrah General Hospital (2005-2008)

Site of cancer (topography)	No.	%
Urinary bladder	528	43.8
Breast	143	11.9
Stomach	69	5.7
Colon-rectal	64	5.3
Larynx	63	5.2
Kidney	48	4
Bone	43	3.6
Pancreas	40	3.3
Secondary	22	1.8
Prostate	20	1.7
Liver	18	1.5
Other lymph nodes	18	1.5
Uterus-cervix	11	0.9
Lung	10	0.8
Ovary	10	0.8
CNS	10	0.8
Leukemia	10	0.8
Skin	8	0.7
Soft tissue	3	0.2
Others	69	5.7
Total	1207	100.0

Table 4. The top 10 cancers for males admitted to Basrah General Hospital during 2005-2008

Type of cancer (topography)	No.	%
Urinary bladder	399	53.9
Larynx	52	7.0
Stomach	51	6.9
Colon-rectal	38	5.1
Bone	28	3.8
Pancreas	27	3.6
Kidney	24	3.2
Prostate	20	2.7
Secondaries	19	2.6
Breast	12	1.6
Other sites	71	9.6
Total	7.41	100.0

Table 5. The top 10 cancers for females admitted to Basrah General Hospital during 2005-2008

Type of cancer (topography)	No.	%
Breast	131	28.1
Urinary bladder	129	27.7
Colon-rectal	26	5.6
Kidney	24	5.1
Stomach	18	3.9
Bone	15	3.2
Pancreas	13	2.8
Larynx	11	2.4
Uterus-cervix	11	2.4
Ovary	10	2.1
Other sites	78	16.7
Total	466	100.0

Cancer registration in Basrah General Hospital 2005-2008

Comparison between the wards records and cancer registry records for the four-year study period revealed that out of the total of 1207 cancer cases admitted to Basrah General Hospital over the four-year period (2005-2008), only 110 (9.1%) cancer cases were registered. The distribution of registered cancer cases according to year of registration did not show any improvement in the adequacy of registration over the four-year study period. (Table-6). Cancers of gastrointestinal tract

(stomach and colo-rectal cancers) and breast cancer showed higher rates of registration compared to all other cancers. In addition, a significantly higher registration rate was observed for female cancers (13.7%) as compared to male cancers (6.2%). Similarly, the registration rate varied for cancer cases of different age groups. The highest registration rate was for those in the age group 35-44 years (15.2%), while the lowest registration rate was for those 75 years or older.

Table 6. Distribution of registered cancer cases according to year of registration

Year	No. of admitted cases	No. of registered cases	Registration coverage (%)
2005	263	24	9.1
2006	288	24	8.3
2007	353	31	8.8
2008	303	31	10.2
Total	1207	110	9.1

DISCUSSION

Epidemiology is an invaluable tool for providing the rational basis on which effective preventive programmes can be planned and implemented.^[10] Descriptive epidemiology helped in understanding the causes of cancer by examining the pattern of distribution of cases by age, sex, social class, geography and so on.^[2] Many descriptive studies raised hypotheses about factors that cause or prevent cancer, which are then tested further in basic-clinical and analytical epidemiological studies.^[10] The present study is a descriptive epidemiological study carried out to study the pattern of

admitted cancer cases in one of the main hospitals in Basrah and to find out whether it reflects the pattern of the predominant cancers in Basrah governorate. The results of the study showed an increase in the number of admitted cancer cases to Basrah General Hospital between 2005 and 2007 with about 148% increase in the number of admitted female cancer cases between the two years. This increase in the number of admitted cancer cases may reflect a real increase in cancer incidence in Basrah particularly among females due to an increase in the incidence of breast cancer.^[8]

Urinary bladder cancer alone accounted for more than half of admitted cancer cases (53.8%), ranking as the first male cancer and the second female cancer. The high frequency of bladder cancer is partly due to the fact that Basrah General Hospital has the largest uro-surgical department in Basrah governorate with large number of specialists in this field. Therefore, it is expected that it receives the majority if not all patients with urological problems particularly cancer. In addition to that urinary bladder cancer is the second most common cancer in Basrah governorate and the first male cancer in Basrah during the period 2005-2008.^[8] Urinary bladder cancer is also the second male cancer in Iraq over the period from 2000-2004.^[4] Urinary bladder cancer rate is high in many parts of the world. It is high in parts of Africa where bladder cancer, particularly of squamous cell type is linked to chronic infection with schistosoma hematobium and in many Southern and Eastern European countries where smoking in men has been prevalent. On the other hand, in developed countries the high risk of urinary bladder cancer is attributed to occupational exposure to carcinogens.^[2] Breast cancer was the second leading cancer of admitted cancer cases to Basrah General Hospital during the study period, while it is the first leading cancer in Basrah and in Iraq. However, breast cancer ranked as the first female cancer as it is in Basrah and in Iraq.^[4,7] However, the leading cancers in males and females according to the present study are somewhat different from those reported for Basrah governorate. The leading cancers in males in Basrah during 2005-2008 were cancers of urinary bladder, lung, and lymphomas and those for females were cancers of breast, uterus and cervix, and skin.^[8] While among cancer cases admitted to Basrah General Hospital over the same period, lung cancer was not among the ten leading cancers in males and uterus and cervix cancer was the ninth leading cancer in females. It is well known that in general, there are several limitations in

describing patterns of cancer in individual institutions. The leading sites of cancer in a given institution are dependent on a number of factors, such as, the popularity of a particular department and/or treating physicians; the availability of a particular diagnostic or treatment facility; the affordability of the patients and so on. For example, in Basrah, chest surgery department is located in another hospital and it is expected to attract lung cancer cases. Despite these limitations, the patterns observed in most of the cancer centers that function as referral institutions for care of cancer patients may reflect the predominant cancers in the region.^[11]

Cancer registries are a unique source of information for any cancer control programme and for developing strategies for cancer health programmes. The main source of information will usually be hospitals or cancer centers.^[11] The task of a population-based registry will obviously be much easier when there are collaborating hospital registries which contribute relevant information.^[11] Evaluation of the cancer registry in Basrah General Hospital showed that registration of cancer cases admitted to the hospital was incomplete and the registry was highly inadequate source of morbidity data for all types of cancer at least until the year 2008.

In conclusion, while interesting information on cancer pattern has been derived from Basrah General Hospital data, they are still incomplete and may represent a selective and biased sample of the patient population. However from accumulated evidence, it seems that ensuring hospital, histopathological and other oncology centers registration will enhance population-based cancer registration to substantial extent and facilitate reasonable estimates of cancer epidemiological parameters.^[7,8]

Acknowledgements: we would like to express our thanks for Basrah Cancer Research Group for helping in using part of their data for this article.

REFERENCES

1. Boon NA, Colledge NR, Walker BR, Hunter JAA. Davidson's Principle and Practice of Medicine. 20th ed. Churchill Livingstone Elsevier; 2006.
2. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin* 2005; 55(2):74-108.
3. Al-Hamdan N, Ravichandran K, Al-Sayyad J, Al-Lawati J, Khazal Z, Al-Khateeb F, et al. Incidence of Cancer in Gulf Cooperation Council Countries 1998-2001. *Eastern Mediterranean Health Journal* 2009; 15(3):600-611.
4. Al-Hasnawi SM, Al-khuzai A, Al-Mosawi AJ. Cancer in Iraq: Distribution by primary tumor site. *New Iraqi Journal* 2009; 5(1): 5-8.
5. Yacoub AAH, Ajeel NAH, Al-Wiswasy MK. Incidence and pattern of malignant diseases (excluding leukemia) during 1990-1997. *The Medical Journal of Basrah University* 1999; 17: 35-41.
6. Yacoub AAH, Al-Sadoon IO, Hassan GG, Al-Hemadi M. Incidence and pattern of malignant disease among children in Basrah with specific reference to leukemia during the period 1990-1998. *The Medical Journal of Basrah University* 1999; 17: 27-34.
7. Habib OS, Al-Ali JK, Al-Wiswasi MK, Ajeel NAH, Al-Asady OG, Khalaf AAA, et al. Cancer Registration in Basrah 2005: Preliminary results. *Asian Pacific Journal of Cancer Prevention* 2007; 8: 187-190.
8. Basrah Cancer Research Group. *Cancer in Basrah: Epidemiological analysis of incident cancer 2005-2008*. Basrah: University of Basrah, Dar AlKutub for Publication; 2009.
9. Habib OS, Al-Emara KAS, Ajeel NAH, Hassan JK. *Cancer in Basrah: a strategy for the future*. *The Medical Journal of Basrah University* 2009; 27:11-14
10. Thun MJ, Wingo PA. *Cancer epidemiology*. In: Bast RC Jr, Kute DW, Pollock RE, Holland JF. Editors: *Cancer Medicine*. 5th ed. Hamilton, Ontario: BC Decker; 2000.
11. World Health Organization (WHO) databank. *Development of an Atlas of Cancer in India*. Chapter 7: Profile of Cancer in Collaborating Centers. *World Health Statistics* 2005. Available at: <http://www.canceratlasinindia.org>.