RESEARCH COMMUNICATION

Cancer Registration in Basrah 2005: Preliminary Results

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Abstract

Cancer is a disease which shows significant variation with time and across geographical entities. In Basrah, Iraq, despite the widespread impression that cancer is increasing, researchers are not yet able to draw clear boundaries as to the extent of cancer and its determinants. In this paper, we make a start in that direction; the aim was to measure as accurately as possible the incidence of cancer (all types) in Basrah, to assess age specific incidence rates and to map the cases across different areas of the governorate. For this purpose we compiled data on every accessible case of cancer. The cancer registry in Basrah was used as the prime source of data on newly diagnosed cancer cases, supported by three other sources: the Cancer Registration Section at the Department of Pathology and Forensic Medicine, College of Medicine, University of Basrah; the Oncology Centre at Al-Sadr Teaching Hospital; and the Oncology Ward in Basrah Maternity and Child Hospital. Other minor sources were also utilized. Information on cases from these sources was subjected to meticulous verification regarding repetition, place of residence and other potential errors. The overall incidence rate was 74.3/100 000 population with a higher rate for females (80.5/100 000) than for males (68.1/100 000). The results indicate clear increase in registered cancer cases with increasing age. The lowest incidence rate was among females aged 5-14 years (10.5/100 000) and the highest was among males aged 65 years and above (660.2/100 000). The results show no major variation in the annual incidence rates of cancer in different areas of Basrah governorate. This finding may suggest a common exposure to cancer risk factors. To reach sound conclusions about extent and determinants of cancer in Basrah, immense multi-spectrum efforts are now needed.

Key Words: Basrah, Iraq - cancer registration - age dependence - spatial distribution - risk factors

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Introduction

Cancer is a growing problem world- wide (WHO, 1995). Despite the great advances in science and technology, the aetiology of many types of cancer is still obscure and the role of specific risk factors in the causation of certain cancers is unresolved with substantial variation across the world (Parkin et al., 2005; Knox et al., 1987). The distribution of almost all diseases including cancer is not random neither across nations nor within individual nations, yet in many instances, the reasons behind such non-randomness are not always clear (Greenberg et al., 2001). In Basrah, Southern Iraq, a number of researchers carried out research work on cancer incidence and mortality during the last ten years and reported some increase in both of these two indicators (Abood, 1999; Yacoub et al., 1999). However, these research works have been under criticism by local researchers (Hassan, 2003) and international writers (Fahey, 2003) for possible bias in their results. The critics suggest that the apparent increase could have been artificial due to better diagnosis, improved reporting and registration or reflect changes in population size and age structure.

Regardless of whether the reported apparent increase in risk of cancer in Basrah is real or artificial, the reported cases did not represent the true situation. At any previous year, case detection and registration is incomplete and fluctuating despite the initiation of official cancer registry in Basrah for more than a decade. From one point of view, many cases from inhabitants of Basrah may consult sources of care outside Basrah and are not registered with registration centers in Basrah at all. From the other point of view, a number of registered cases, though small, are not inhabitants of Basrah governorate. In addition, the population denominators are not very accurate partly because of population movement during the last 20 years or so. In the last three years, the situation became more complicated when many of the expatriated Iraqis returned to the country. Such complicated situation with the added security issues makes research a real adventure.

In an attempt to improve the picture on cancer in Basrah, a team of researchers from medical and related specialties initiated a four-legged project. The project consisted of measures to improve patient care, to prevent

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cancer cases, to improve case detection and registration, to map cases and identify possible risk factors and lastly to map possible environmental pollutants with specific reference to radioactive pollutants. During 2004-2006, the team, in collaboration with all relevant partners, made intensive work to achieve their objectives. Currently, a nucleus for cancer registration has already been initiated in Basrah governorate and major hospitals started to cooperate and may soon initiate their own clinical cancer registration.

In this paper, preliminary results on all types of cancers, the age specific and sex specific incidence rates and the spatial distribution are presented for the year 2005. For details, readers are advised to visit the web site: www.basmedcol.com

Subjects and Methods

The results reported in this paper are part of an ongoing project in Basrah (Habib et al., 2006). The results reported here are based on all cases of cancer, which were diagnosed by histopathologists, hematologists and/or radiologists in Basrah during 2005 and registered with Cancer Registry in Southern Iraq located in Basrah. This was the main source of cases but supported by the following additional sources:

a. Cancer Registration Section at the Department of Pathology and Forensic Medicine, College of Medicine, University of Basrah. This section compiles the great majority of cancer cases whose diagnoses are confirmed by histopathological and cytological methods.

b. The Oncology Center in Al-Sadr Teaching hospital, which is the main centre for registration of cases for the purpose of administration of cytotoxic chemotherapy in Southern Iraq.

c. Pediatrics' Oncology Ward in Basrah Maternity and Child hospital, which is responsible for the cytotoxic treatment of childhood malignancies.

d. Other sources. Some specialist doctors keep their own collection of cancer cases as part of their own routine work. They were contacted and requested to provide a list of their cases which were added to the pool of cases.

All these sources are now cooperating with each other and with the research team to improve cancer detection and registration in Basrah. Lists obtained from various sources were matched and checked for any case reported by more than one source. A point needs to be stressed here; we do not claim that the results presented in this paper represent all cases of cancer in Basrah governorate. Rather we can claim that they represent the best epidemiological achievement so far in this respect. Still, we believe that some cancer cases might be diagnosed and treated outside Basrah. The latter must; however be small numbers given the availability of very expert pathologists in Basrah. The total number of cases registered with all sources in 2005 was 1885 cases. It was possible to verify every case and classify these 1885 cases into those who were inhabitants of Basrah governorate (1604 cases) and those who were inhabitants of other governorates (281 cases). The 1604 cases were used to estimate cancer specific, place specific and age and sex specific incidence rates in Basrah governorate. In more than 90% of the registered cases the diagnosis was based on histopathological methods.

Information related to population of Basrah were based on data available with Basrah Health Authorities (Division of Preventive Medicine), the electorate lists and the Statistical Office in Basrah .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 (Basrah Medical College 2002, Al-Mulla, 2006).

Results

The extent of cancer in Basrah

Table 1 shows the distribution of new cancer cases reported in Basrah governorate during 2005 classified according to sex and type of cancer. Over all, 45.7% are male cases and 54.3% are female cases. Among the major cancers which are relatively more among males are cancer of the urinary bladder, lymphomas, skin, lung, larynx, leukemia, pharynx and soft tissue. Cancers which are

Table 1. Frequency and Incidence Rates/100,000 for New Cancer Cases in Basrah, 2005

Type of cancer	Males		Females		Total		IR
	No.	%	No.	%	No.	%	
Breast	6	0.8	276	31.7	282	17.6	13.1
Urinary bladder	79	10.8	28	3.2	107	6.7	5.0
Lymphomas*	71	9.7	32	3.7	103	6.4	4.8
Skin	54	4.0	44	5.1	98	1.0	4.5
Lung	64	8.7	24	2.8	88	5.5	4.1
Leukaemia	36	4.9	32	3.7	68	4.2	3.2
Colon-rectum	31	4.2	37	4.2	68	4.2	3.2
Larynx	48	6.5	18	2.1	66	4.1	3.1
Stomach	31	4.2	29	3.3	60	3.7	2.8
Soft tissue	39	5.3	19	2.2	58	3.6	2.7
Other lymphoid	28	3.8	21	2.4	49	3.1	2.3
Uterus &cervix	-	-	48	5.5	48	3.0	2.2
Bone	24	3.3	22	2.5	46	2.9	2.1
Ovary	-	-	43	4.9	43	2.7	2.0
Pleura*	18	2.5	15	1.7	33	2.1	1.5
CNS	17	2.3	13	1.5	30	1.9	1.4
Peritoneum*	11	1.5	18	2.1	29	1.8	1.3
Thyroid gland	6	0.8	23	2.6	29	1.8	1.3
Pharynx	21	2.9	6	0.7	27	1.7	1.3
Liver	13	1.8	11	1.3	24	1.5	1.1
Kidney	11	1.5	13	1.5	24	1.5	1.1
Prostate	21	2.9	-	-	21	1.3	1.0
Pancreas	8	1.1	12	1.4	20	1.2	0.9
Secondary	12	1.6	6	0.7	18	1.1	0.8
Parotid gland	7	1.0	3	0.3	10	0.6	0.5
Testis	11	1.5	-	-	11	0.7	0.5
Bone marrow	7	1.0	3	0.3	10	0.6	0.5
Retroperitoneal	4	0.5	6	0.7	10	0.6	0.5
Choriocarcinoma	-	-	10	1.1	10	0.6	0.5
Nose	6	0.8	3	0.3	9	0.6	0.4
Oral cavity	3	0.4	6	0.7	9	0.6	0.4
Gall bladder	4	0.5	4	0.5	8	0.5	0.4
Small intestine	6	0.8	1	0.1	7	0.4	0.3
Abdominal wall	2	0.3	3	0.3	5	0.3	0.2
Vulva/vagina	-	-	5	0.6	5	0.3	0.2
All others	35	4.8	34	3.9	69	4.9	3.2
Total	733	100	871	100	1604	100	74.3

*(Hodgkin's and non-Hodgkin)

Table 2. Population Data, Total Cancer Cases by Sex and Age and Incidence Rates/100,000 for 2005

Age (yrs)	Males			Females		
	Population	Cases	IR	Population	Cases	IR
<5	138,790	18	13.0	136,354	24	17.6
5-14	285,112	49	17.2	277,037	29	10.5
15-44	505,670	159	31.4	524,855	286	54.5
45-64	115,121	301	261.5	106,054	383	361.1
65 & over	31,201	206	660.2	37,876	148	390.7
Total	1,075,894	733	68.1	1,082 176	871	80.5

Over all Standardized incidence rate using World Standard Population; for all population = 117.7/100 000, for males = 114.3/100 000, for females = 123.4/100 000

relatively more common among females are those of the breast and thyroid gland.

Regarding the cancer specific incidence rates, the ten leading cancers accounted for about 46.5/100 000 or 62.6% of the over all risk of cancer in Basrah in 2005.

Age and sex specific incidence rates of cancer

Table 2 shows the age and sex specific annual incidence rates of all cancers reported in Basrah in 2005 for different age groups in males and females.

Geographical (Spatial) distribution

Table 3 shows the estimated annual incidence rates of all cancers for different geographical areas in Basrah governorate in 2005.

Discussion

The present paper attempts to quantify, though grossly, the extent of cancer in Basrah governorate and to give some age specific indicators and spatial distribution in different areas of Basrah governorate. No attempt is made to interpret the results at this stage or to draw concrete conclusions out of these results about the extent of increase or the related risk factors. The authors are aware of the limitations of the data used. First the registered numbers of cancer cases are by no means represent the true situation in Basrah whether these cases are obtained from all sources stated or from the main source (Cancer Registration Section). However acknowledging this limitation does not invalidate the data used. Two clarifications are made here. The first is that the diagnostic facilities (histopathological, hematological and radiological) in Basrah are well developed and gained the respect of both professionals and people. The cases of solid tumors diagnosed and registered by histopathologists are likely to cover very high proportions of cancer cases. The variation in coverage in different years is expected to be low and there is no reason to believe otherwise. Increasing expertise in histopathology and hematology specialties in Basrah is expected to improve the coverage by diagnosis with time. This means that the cases diagnosed and registered in Basrah in 2005 must be very close to the real magnitude of cancer in the governorate. The use of these cases to measure certain epidemiological parameters is valid and does not distract very much from the reality. If errors exist, they are towards under-estimation of the incidence of cancer. The second point of clarification is that, calculation of age specific incidence rates or incidence rates across geographical areas requires reasonable accuracy of the population at risk. The task to obtain accurate data on Basrah population was not straight foreword. We tried a number of sources to get the most likely accurate estimate of the population.

Table 3. Annual incidence rates/100,000 of all Cancers in Different Areas of Basrah in 2005

Area	Population	Registered cases	IR
Basrah City	853,484	669	78.4
Northern Area	609,654	398	65.3
Western Area	401,481	321	80.0
Southern Area	195,128	141	72.3
Eastern Area	98,323	75	76.3
Total	2,158 070	1,604	74.3

Table 4. Age-standardized Incidence Rates of all Cancers in Basrah and Selected Neighboring Countries

Location	Females	Males
Basrah	123.4	114.3
Iraq	111.8	119.2
Bahrain	110.9	118.7
Kuwait	97.1	111.6
Jordan	111.1	120.2
Turkey	88.5	152.6
Iran	111.8	119.2

Regardless, the results indicate two important aspects of cancer in Basrah. The first is that a tendency to increase with time is evident in the over all incidence rate as compared to previously reported figures (Abood, 1999; Yacoub, 1999). This increase needs further efforts to quantify in more accurate manner by further improving cancer detection and registration. In our view, the issue of cancer phobia which is prevailing among professionals and people in Basrah will remain unresolved unless every doctor in Basrah takes the correct step to contribute to the consolidation of cancer registry. This requires collaboration among all involved partners through a clear mechanism of data acquisition, data transfer and data compilation. Nevertheless, the age standardized incidence rates obtained in this study do support a real rise in cancer risk in Basrah, at least among females, comparing our results with figures for neighboring countries (Ferlay et al., 2001). The incidence rate among males was within the range among males in these countries. However, the incidence rate among females in Basrah was the highest among females in the area (Table 4).

The second is that variation in incidence rates in different areas of Basrah is not substantial. The range of incidence rates is from 65.3-80.0 /100 000. It might suggest that the level of risk for the population in different areas is similar. But using the data of one year might not be sufficient to detect true and substantial differences in incidence rates and hence differences in exposure to risk factor. In conclusion, the present paper supports the prevailing impressions and previous research findings (Abood, 1999; Yacoub et al., 1999), which, suggest an increased cancer risk in Basrah but solid evidence on the

extent of increase and its determinants is still waiting. We recognize very clearly a substantial increase in the incidence rate of breast cancer, a finding that stimulate us to highly recommend a more effective breast cancer screening program to ensure early detection of cases.

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References

Abood AS (1999). A study of time and space distribution of selected diseases in Basrah. PhD thesis, University of Basrah.

Al-Mulla AYY (2006). Fertility in Basrah: Pattern and determinants. Ph. D. Thesis, University of Basrah.

Badsrah Medical College, Department of Community Medicine (2002). Reports of Field Practice Experience for the years 1993-2002.

Fahey D (2003). Science or science fiction: Facts, myths and propaganda in the debate over depleted uranium weapons. Available on www.danfahey.com/DanFahey/

Greenberg RS, Eley JW, Daniels SR, Boring, Flanders WD (2001). Medical Epidemiology. Lange Medical Book/ McGraw-Hill. Toronto, 3rd Edition, Toronto, Chapter 1, Pp: 1-14.

Ferlay J, Bray F, Pisani P, Parkin DM. GLOBOCAN 2000: Cancer Incidence, Mortality and Prevalence Worldwide. IARC Cancer Base No. 5. Lyon, France: International Agency for Research on Cancer; 2001.

Habib OS, Al-Ali JK, Al-Wiswasi MK, Ajeel NAH (2006). The burden of cancer in Basrah: The state of the art- first report. Available on www.basmedcol.com

Hassan JK (2005). Incidence and time trend of cancer in Basrah. *Med J Basrah University*, 23, 13-20.

Knox EG, Stewart AM, Gilman EA, Kneale GW (1987). Background radiation and childhood cancer. *J Radiol Protect*, **8**, 9-18.

Parkin DM, Bray T, Ferlay J, Pisani P (2005). Global cancer statistics 2002. *CA Cancer J Clin*, **55**, 74-108.

WHO (1995). National cancer control programs: Policies and managerial guidelines, World Health Organization, Geneva,.

Yacoub AAH, Ajeel NAH, Al-Wiswasy MK (1999). Incidence and pattern of malignant diseases (excluding leukemia) during 1990-1997. *Med J Basrah University*, **17**, 35-41.

Yacoub AAH, Al-Sadoon IO, Hassan GG, Muffid Al-Hemadi, (1999). Incidence and pattern of malignant disease among children in Basrah with specific reference to leukemia during the period 1990-1998. *Med J Basrah University*, **17**, 27-34.