Prevalence of cancer disease in Thi_Qar Provence

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Abstract. For the purpose of reaching and trying to control the causes of cancer, Data information about ( sex, age, location , type of cancer, year) was collected for 2892 patients and for five consecutive years from the health department of Dhi Qar and from the districts of (AL-Nasiriyah, Suq al-Shuyukh, AL- Shatrah, AL- Rifai, and AL-Chabaish ). The result was that the highest incidences of cancer (24.1%) in 2011 and the lowest rate of cancer (15.6%) in 2010, and the following cancers were the most common : lung, bladder, larynx, central nervous system, liver, lymphatic, ovary, stomach, breast, prostate, blood, pancreas, uterus, kidney, colon, rectum, skin, thyroid, soft tissue and cancers in other sites of the body . But, lung cancer is the most common, which was highest in 21.1% in 2014 . The age group (greater than 75 years) was the most vulnerable to cancer (33.7%) in 2010 and (10-14 years) group was the least vulnerable to cancer and reached the highest rate (1.4%) in 2014 . Nasiriyah included the highest number of cancer cases and the highest rate of cases (55.9%) in 2010. Numbers of males suffering from cancer were greater than numbers of females suffering from cancer and the highest rate was 57% for males in 2011 .

1. Introduction

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the disease is not controlled, it leads to death. The causes of many types of cancers are still unknown, especially those that occur during childhood

(ACS, 2017) . Global cancer rates are increasing in general and in Iraq, particularly for many reasons, including population changes, lifestyles in the developing world, wars and displacement .In 2008, about 12.7 million cancer cases were diagnosed, and 7.6 million people died of cancer worldwide (Jemal et al., 2012)

One in eight deaths worldwide is dying from cancer, cancer deaths worldwide surpass cancer deaths from AIDS, tuberculosis and malaria combined. By 2050, it is estimated that there will be approximately 27 million new cases of cancer globally compared to only 12 million new cases of cancer recorded in 2007 (ACS, 2007).

Causes of cancer may be external factors such as tobacco, chemicals, radiation, infectious organisms, lifestyle and increased body weight or internal non-adjustable such as inherited mutations, hormonal disorders, immune conditions and mutations that occur from metabolism. These factors may
work simultaneously or in a regular sequence to initiate and promote cancer growth (ACS, 2007; Jemel et al., 2012).

Age is the most important risk factor for cancer development (Jonson, 2010). Although cancer can affect any age, most people who are diagnosed with advanced invasive cancer are in the aging phase and their rates are over the age of 65 (Jonson, 2010; Pawelec et al., 2010).

In their study, Husain & Al-Alawachi (2014) reported that the top 10 repeat cancers in Iraq in 2008 were breast cancer followed by lung cancer, leukemia, bladder and brain cancer and central nervous system, non Hodgkin lymphoma, colon cancer, Stomach cancer, skin cancer except melanoma, and finally throat cancer.

Their study also revealed that the number of registered cancer cases was 5720 in Iraq at 31.05 per 100,000 in 1991 and increased to 14,180 (44.46) per 100,000 population in 2008. The rate of cancer in Iraq increased With an aging per 100,000 population under the age of 10 years to 398 per 100,000 population at the age of 70 (Husain & Al-Alawachi, 2014).

The most frequent cancers were breast cancer, lung, bronchitis, urinary bladder, and blood cancers. Prostate and skin cancers were the least frequent, and breast cancer was the first female killer, according to Weheed et al (2011). While lung cancer and bronchitis is the first killer in males. The study also found that cancer in Thi Qar is a major, growing, multiple causes, consequences and exclusion of a particular type. The study proved that there are rare and other cancers occurring at an early age and in increasing percentage of injuries and deaths annually in most areas and districts of the governorate and for all age groups in both sexes.

From the above we found that it is necessary to have a comprehensive study in Thi Qar to identify the most prevalent cancer patterns and distribution in our province over five consecutive years and ways of prevention and early detection through awareness of the health of the people in the province for the risk of these cancers and the need for tests and periodic detection precautionary for women to prevent breast cancer, which is one of the top ten cancers registered in Thi-Qar and the first killer of women throughout Iraq.

2. Patients and methods

The data (sex, age, location, type of cancer, year) were collected for 2892 people with cancer for five consecutive years (2010, 2011, 2012, 2013, 2014) through their forms obtained from the Department of Statistics in the Department of Health Thi Qar, where this department receives cases of infection from all hospitals in the province with its five beds (Nasiriyyah, Suq al-Shuyukh, Shatrah, Rifa'i and Chabaish). The injuries were sorted by sex, age, place of residence, type of cancer, year.

3. Results and Discussion

The highest percent of cancer incidences was 24.1% in 2011 and the lowest percent was (15.6%) in 2010. The incidence of lung cancer was highest in 504 among the other cancers of the five years and reached the highest percentage (21.1%) in 2014 and 10.2% in 2010. The lowest cancer of the tissues was the lowest (0.8%) in 2014 (Table 1)

| Table 1: Distribution of cancer incidence rates during the five years (2010-2014) |
Cancer arises as a result of the transformation of cells from normal to cancer and develops over time into malignant tumors that threaten human life. Cancer deaths occur almost as a result of the following behavioral and dietary factors: high BMI, inadequate intake of fruits and vegetables, physical activity and tobacco and alcohol use (GBD 2015), as these carcinogenic changes occur as a result of the interaction between individual genetic factors and external environmental factors, UV and ionizing radiation, carcinogenic agents (asbestos, tobacco smoke components, fungal toxins such as aflatoxin (a food contaminant) and heavy metal pollution eg arsenic (one of the drinking water contaminants) and lead ( Air contaminants) ( Ferlay et al., 2012) . And carcinogenic biological agents, for example viruses and bacteria. human papilloma is an example of virusus, which causes cervical cancer, Hepatitis B virus and Hepatitis C virus , that cause liver cancer and is the most common type of cancer. Also, Helicobacter pylori that causes stomach cancer (Plummer et al., 2016).

Since 1991, Iraq has been exposed to radiation and is still under its influence, leading to the spread of cancer in Iraq, especially in the south. The use of depleted uranium against Iraq has resulted in a sevenfold increase in cancer cases, lung cancer four times and lung cancer mortality five times.

Many international organizations, such as the Food and Agriculture Organization of the United Nations (FAO), the World Food Program (WFP), and the World Health Organization (WHO) have shown radioactive contamination in the soil and in some plants with varying concentrations of thorium 243, radium 226, and bismuth 214, which is higher than normal, resulting in mysterious diseases such as leukemia, lymphoma and breast cancer. And noted the need to study the level of radiation activity under its influence, leading to the spread of cancer in Iraq, especially in the south. The use of depleted uranium against Iraq has resulted in a sevenfold increase in cancer cases, lung cancer four times and lung cancer mortality five times.

| Cancer type                  | 2010 No. | 2011 % | 2012 No. | 2013 % | 2014 No. | Total No. |
|------------------------------|----------|--------|----------|--------|----------|-----------|
| Lung                         | 46       | 10.2%  | 131      | 18.8%  | 97       | 16.5%     | 107       | 18.7%  | 123     | 21.1%  | 504     |
| Bladder                      | 58       | 12.9%  | 94       | 13.5%  | 82       | 14%       | 83        | 14.5%  | 59      | 10.1%  | 376     |
| Lungs                        | 55       | 12.2%  | 44       | 6.3%   | 14       | 2.4%      | 6         | 1%     | 7       | 1.2%   | 126     |
| The central nervous system   | 70       | 15.5%  | 105      | 15th%  | 46       | 7.8%      | 56        | 9.8%   | 60      | 10.3%  | 337     |
| Liver                        | 28       | 6.2%   | 39       | 5.6%   | 52       | 8.9%      | 35        | 6.1%   | 51      | 8.7%   | 205     |
| Lymphatic system             | 31       | 6.9%   | 49       | 7%     | 26       | 4.4%      | 2         | 0.3%   | 7       | 1.2%   | 115     |
| Ovary                        | 21       | 4.7%   | 10       | 1.4%   | 7        | 1.2%      | 8         | 1.4%   | 7       | 1.2%   | 53      |
| Stomach                      | 17       | 3.8%   | 25       | 3.6%   | 15th     | 2.6%      | 23        | 4%     | 21      | 3.6%   | 101     |
| Breast                       | 21       | 4.7%   | 33       | 4.7%   | 39       | 6.6%      | 37        | 6.5%   | 41      | 7%     | 171     |
| Prostate                     | 6        | 1.3%   | 10       | 1.4%   | 12       | 2%        | 10        | 1.7%   | 3       | 0.5%   | 41      |
| The Blood                    | 0        | 0.0%   | 1        | 0.1%   | 5        | 0.9%      | 17        | 3%     | 13      | 2.2%   | 36      |
| Pancreas                     | 34       | 7.5%   | 30       | 4.3%   | 29       | 4.9%      | 24        | 4.2%   | 32      | 5.5%   | 149     |
| Uterus                       | 0        | 0.0%   | 9        | 1.3%   | 16       | 2.7%      | 10        | 1.7%   | 10      | 1.7%   | 45      |
| the kidney                   | 0        | 0.0%   | 2        | 0.3%   | 8        | 1.4%      | 13        | 2.3%   | 7       | 1.2%   | 30      |
| The Straight colon - Bone    | 1        | 0.2%   | 12       | 1.7%   | 21       | 3.6%      | 14        | 2.4%   | 24      | 4.1%   | 72      |
| the skin                     | 0        | 0.0%   | 7        | 1%     | 21       | 3.6%      | 15th      | 2.6%   | 11      | 1.9%   | 54      |
| Thyroid                      | 0        | 0.0%   | 0        | 0.0%   | 2        | 0.3%      | 4         | 0.7%   | 4       | 0.7%   | 10      |
| Soft issue                   | 0        | 0.0%   | 0        | 0.0%   | 0        | 0.0%      | 0         | 0.0%   | 1       | 0.8%   | 1       |
| Other sites of the body      | 63       | 14%    | 97       | 13.9%  | 92       | 15.7%     | 107       | 18.7%  | 95      | 16.3%  | 454     |
| Total of each year           | 451      | 15.6%  | 698      | 24.1%  | 587      | 20.3%     | 573       | 19.8%  | 583     | 20.2%  | 2892    |
Changes in the glands or hormonal changes associated with aging contribute to the development of certain cancers (WHO, 2010). Nasiriyah was the most frequent (1476) cancer cases for the five years and reached the highest rate of incidence (55.9%) in 2010 and the lowest rate (47%) in 2012, and Al-chabayish was the least number (104) incidences, with the highest percent (4.6%) in 2014 and the lowest (2.9%) in 2011 (Table 3).

The results showed a decrease in an incidence rates as moved away from the center of the governorate. The city's atmosphere is characterized by an increase in radiation pollution from the communication towers, as well as the pollution of the and the lack of vegetation to control pollution (Vincisand Husgafvel, 2005) combined with the consumption of food crops treated with chemical fertilizers led to the rapid development of cancer, detection and registration, compared to cases in areas away from the centers of cities, which are still in the early stages due to lack of pollutants (Wilkinson and Cameron, 2004).

Table 2: Distribution of cancer rates, according to age groups for the five years.

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | Total |
|------|------|------|------|------|------|-------|
| Age group | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Less than 5 years | 9 | 2% | 15 | 1.4% | 3 | 0.5% | 302 | 52.7% | 18 | 3.1% | 347 |
| (5-9) | 3 | 0.7% | 8 | 1.1% | 8 | 1.4% | 5 | 0.9% | 7 | 1.2% | 31 |
| (10-14) | 2 | 0.4% | 6 | 0.9% | 6 | 1% | 1 | 0.2% | 8 | 1.4% | 23 |
| (15-19) | 5 | 1.1% | 7 | 1% | 12 | 2% | 5 | 0.9% | 9 | 1.5% | 38 |
| (20-24) | 12 | 2.7% | 10 | 1.4% | 10 | 1.7% | 6 | 1% | 9 | 1.5% | 47 |
| (25-29) | 9 | 2% | 15 | 2.1% | 6 | 1% | 2 | 0.3% | 11 | 1.9% | 43 |
| (30-34) | 23 | 5.1% | 14 | 2% | 13 | 2.2% | 8 | 1.4% | 16 | 2.7% | 74 |
| (35-39) | 6 | 1.3% | 31 | 1.7% | 21 | 3.6% | 13 | 2.3% | 19 | 3.3% | 71 |
| (40-44) | 10 | 2.2% | 18 | 2.6% | 26 | 4.4% | 15th | 2.6% | 22 | 3.8% | 91 |
| (45-49) | 13 | 2.9% | 31 | 4.4% | 32 | 5.5% | 14 | 2.4% | 33 | 5.7% | 123 |
| (50-54) | 29 | 6.4% | 45 | 6.4% | 28 | 4.8% | 12 | 2.1% | 32 | 5.5% | 146 |
| (55-59) | 27 | 6% | 64 | 9.2% | 50 | 8.5% | 27 | 4.7% | 38 | 6.5% | 206 |
| (60-64) | 37 | 8.2% | 89 | 12.8% | 80 | 13.6% | 47 | 8.2% | 91 | 15.6% | 344 |
| (65-69) | 60 | 13.3% | 85 | 12.2% | 92 | 15.6% | 34 | 5.9% | 92 | 15.8% | 363 |
| (70-74) | 54 | 12% | 88 | 12.6% | 58 | 9.9% | 33 | 5.8% | 63 | 10.8% | 296 |
| Greater than 75 years | 152 | 33.7% | 191 | 27.4% | 142 | 24.2% | 49 | 8.6% | 115 | 19.7% | 649 |
| Total | 451 | 15.6% | 698 | 24.1% | 587 | 20.3% | 573 | 19.8% | 583 | 20.2% | 2892 |

Table 3: Distribution of cancer rates according to province areas for the five years.

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | Total |
|------|------|------|------|------|------|-------|
| Area | No. | % | No. | % | No. | % | No. | % | No. |
| Nasiriyah | 252 | 55.9% | 362 | 51.9% | 276 | 47% | 298 | 52% | 288 |
| Shuq-alsheukh | 53 | 11.8% | 71 | 10.2% | 72 | 12.3% | 82 | 14.3% | 75 |
| Al-Rifaa | 58 | 12.9% | 123 | 17.6% | 99 | 16.9% | 67 | 11.7% | 95 |
| Shatrah | 69 | 15.3% | 122 | 17.5% | 120 | 20.4% | 108 | 18.8% | 98 |
| Chabaish | 19 | 4.2% | 20 | 2.9% | 20 | 3.4% | 18 | 3.1% | 27 |
| Total | 451 | 15.6% | 698 | 24.1% | 587 | 20.3% | 573 | 19.8% | 583 |

Males had the highest incidence of cancer, where the highest percent among males (57%) in 2011 and the lowest percentage (51.3%) in 2014. The highest rate of an incidences were recorded in females (48.7%) in 2014 and the lowest percentage (43%) in 2011 (Table 4).
The higher incidence of male compared with females may be related to several factors, most notably the likelihood of males being more likely to be infected by females as a result of smoking (Secretan et al., 2009; IARC 2004). Other studies point to the difference in genetic factors (Okomoto et al., 2005).

Sexual hormones also have an effect on infection as Soulsby (1982) has shown that male hormones lead to decreased cellular immunity, while female hormones increase female immunity.

Table 4: Distribution of cancer incidence by sex for the five years.

| Year | Sex   | No. | %    | No. | %    | No. | %    | No. | %    | No. | %    | No. | %    | Total |
|------|-------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-------|
|      | Male  | 242 | 53.7%| 308 | 52.5%| 301 | 52.5%| 299 | 51.3%|      |       |     |      | 1548  |
|      | Females | 209 | 46.3%| 284 | 47.5%| 272 | 47.5%| 284 | 48.7%|      |       |     |      | 1344  |
|      | Total  | 451 | 15.6%| 588 | 24.1%| 573 | 19.8%| 583 | 20.2%|      |       |     |      | 2892  |

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