Journal of Cancer Research & Therapy

NobleResearch
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Hamdi Cherif M et al., J Cancer Res Ther 2015, 3(9):100-104
http://dx.doi.org/10.14312/2052-4994.2015-14

Original research

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Cancer estimation of incidence and survival in Algeria 2014

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Abstract

Cancer is one of the major public health problems in Algeria. In the last 25 years, a significant increase in the incidence of the major types of cancers has been observed in both sexes. Moreover, the 5-year survival rate is low for the severe tumors due to a difficulty in access to cancer care and an incomplete health care framework. Cancer Registry of Setif, Algeria, has been recording cancer incidence, mortality, and survival since 1986 in collaboration with International Agency for Research on Cancer (IARC) of Lyon. Cancer Registry of Setif is being a source of information for cancer planning and corresponding surveillance in the National Cancer Plan 2015-2019, starting in January 2015. Data is recorded by means of CanReg 5 software. This software is developed and provided by the International Agency for Research on Cancer (IARC) of Lyon. It is designed specifically for cancer registration, and standardized to capture, control, and process the data. Estimation of cancer incidence in Algeria and survival rates are very important for surveillance, control, and planning of care. In men the incidence of lung, colorectal, bladder, prostate, and laryngeal cancers has significantly and steadily increased in the last decade. In women, the incidence of breast, colorectal, thyroid, and lung cancers has also increased significantly in the same period. Five-year survival rates for cancer of the stomach, colon, rectum, liver, lung, breast, cervix, ovary, and prostate in adults, and childhood leukemia are relatively low compared with other countries. The aim of our study was to estimate incidence and survival by means of Setif cancer registry data.

Keywords: cancer; estimation; incidence; trend; survival

Introduction

Algeria is an example of real epidemiological transition [1-5]. This transition is marked by a structural change in the epidemiological profile of the population. Overall population mortality decreased significantly in the last 50 years (16.45 per thousand in 1960 to 4.41 per thousand in 2008), correlated with a gradual increase in life expectancy. The demographic transition resulted in a gradual aging of the population importantly towards people over 60 years in the age pyramid [6]. However, the transformation of the environment, an acute change in the individual and collective life (increased smoking, stress, sedentary lifestyle, urbanization) and life style change are the cause of emergence of non-communicable (NCDs), including cancer, which is often a multifactorial disease and its causes are difficult to study.

Created in 1986, the Setif Cancer Registry is the first population cancer registry in Algeria, approved by the International Agency for Research on Cancer (IARC), which published the first cancer incidence data in Algeria, and other five Continents, where this shows the quality indices of cancer data parameters such as MV%, PSU%, Age UNK%, DCO% and MI ratio% were accepted. Setif Cancer registry was followed by the Cancer registry of Algiers, Oran, and then by those of 11 other regional cancer registries [7-15].

The long experience of cancer registration in Setif, has been utilised for the implementation and development of other cancer registries in Algeria and Africa [11]. The World Health Organization (WHO) and several other scientific groups have recognized the importance of population cancer registries as essential health research tool. The epidemiologic data were used in the National Cancer Plan 2015-2019 starting in January 2015 [16].

The aim of our study is to provide the incidence and survival estimation from cancer registration data in Algeria.

Materials and methods

The Setif Cancer Registry was founded in January 1989 in collaboration with the International Agency for Research on Cancer (IARC) in Lyon, France [8-13]. Algiers, Oran, Constantine, Batna and Annaba were respectively established in 1991, 1993, 1994, 1995, and 1996 [11].

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Received 23 July 2015 *Revised* 4 September 2015 *Accepted* 20 September 2015 *Published* 30 September 2015

Citation: Hamdi Cherif M, Bidoli E, Birri S, Mahnane A, Zaidi Z, Boukharouba H, Moussaoui H, Kara L, Ayat A, Makhloufi K, Bouchaibi I, Atoui, Virdone S, Serraino D. Cancer estimation of incidence and survival in Algeria 2014. J Cancer Res Ther. 2015; 3(9):100-104. DOI:10.14312/2052-4994.2015-14

According the National Statistics Office (ONS), algerian population as of 1st January 2015 was 39.5 million with 50.62% male and 49.38% female population [6].

The cancer data has been collected and coded according to the International Classification of Diseases for Oncology, Third Revision (ICD-03) [20]. The data has been collected from latest version of CanReg 5 [21], developed by the International Agency for Research on Cancer. Data analysis is done with the SEER * STAT, provided by NCI [22, 23]. The analysis of time trends (Annual Percent Change [APC]) of cancers using the statistical software i.e. Join Point.

The estimation of cancer incidence in Algeria in 2014 is made from modelling data of Setif and data of Cancer Registries published in Cancer in Africa, Cancer Incidence in Five Continents in the period 2000-2014, and Globocan data 2012 [17, 36-38].

The Algerian survival data are produced by the participation of Setif and Annaba Cancer registries. Individual tumours records were submitted to two international studies of surveillance of cancer survival 1990-1994 (Concord-1) [18], and 1995–2009 (Concord-2) [19], by 279 population-based cancer registries in 67 countries, for 25.7 million adults (15–99 years) and 75000 children (0–14 years) diagnosed with cancer during 1995–2009 and followed up to Dec 31, 2009 [18]. Algeria has participated with 6919 cases, covered a population of 2099478, approximately 6 % of total population.

The standardized net survival for adults (15-99 years) survival rates were calculated for 551 cancers of stomach, 406 colon, 343 rectum, 177 liver, 908 lung, 1582 breast, 514 cervix, 195 ovary, 384 prostate, and 350 leukemia.

Results

Incidence of cancer in 2014 in Algeria

According to the registry, the new cancer cases were 41250 including 18710 Men and 22540 Women with crude incidence of 99.2 and 112.7 respectively per 100,000 population. The standardized rate of incidence in male stands at 118.4 in men and 136 in women.

Incidences of common cancers in males (Table 1)

Lung cancer

2992 new cases of lung cancer were recorded. It occupies the first rank in men (21%). The crude incidence rate per 100,000 inhabitants is 14.9, the standardized incidence rate is 22.7 per 100,000. This tumor incidence is 5 times more in men than women. The median age in men is 61 years. Lung cancer incidence occupies an intermediate position between the west countries and Arab countries. In North Africa, the incidence of lung cancer is less than Tunisia and Morocco.

Colorectal cancer

2687 reported new cases. The crude incidence rate is 13.5/ 100,000, and standardized incidence rate 16.3. The median age at diagnosis is 65 years. The colorectal cancer occupies an intermediate position between the industrialized and developing countries. In North Africa, we note the same incidence. The incidence remains low as compared to industrialized countries.

Table 1 Cancer data of commonly sites in male, Algeria, 2014.

Location	*Number of cases*	*Crude rate/ 100,000*	*ASR(WR)/ 100,000*	*Median age*
Lung	2992	14.9	22.7	61
Colorectum	2687	13.5	16.3	65
Bladder	2112	10.6	14.5	67
Prostate	1645	8.3	10.8	71
NPC	1036	5.3	5.8	43
LNH	712	3.6	4.2	57

Bladder cancer

2112 new cases were recorded. The crude incidence rate is 10.6, and the standardized incidences is 14.5. The bladder cancer observed 5 times more in men than women. Bladder cancer occupies the third rank in out of all types of cancers observed in male, representing 26 % of all tumors in male population. The median age at diagnosis is 67 years. Bladder cancer occupies an intermediate position. In North Africa, the incidence is variables. The high incidence in Egypt is due to schistosomiasis disease.

Prostate cancer

Prostate cancer represents 10% of among male cancers, 1645 new cases were recorded. This tumor is in 7th position. The crude incidence rate of 8.3 per 100,000 and standardized incidence rate of 10.8. The median age at diagnosis is 71 years. The incidence of prostate cancer is lower than that of developed countries. This incidence is relatively lower than Maghreb countries.

Nasopharyngeal cancer

1036 new cases of nasopharyngeal carcinoma have been reported. This is the first ORL location. Crude incidence rate per 100,000 inhabitants is 5.3.The standardized incidence rate is 5.8/ 100,000. This tumor observed by 2.3 times more in men than women. The median age of diagnosis is 43 years. Nasopharyngeal cancer incidence is intermediary position between the high incidence countries i.e in South China and lower as compared to incidence in industrialized countries. The incidence is similar with the other countries of the Maghreb, Tunisia and Morocco.

Non hodgkin lymphoma

Tumors of the hematopoietic system represent 11% of all malignant tumors. 712 new cases of NHL were reported. The crude incidence rate is 3.6, and a standardized incidence of 4.2. The median age of patients is 57 years. The incidences are similar to Maghreb countries.

Incidences of common cancers in females (Table 2)

Breast cancer

10910 new cases were reported. It is the most common cancer in women. It represents 59% of all women's tumors. The crude incidence rate per 100,000 women is 54.4 and standardized incidence rates are 65.2 per 100,000 women.

The median age at diagnosis is 47 years. Breast cancer in women occupies an intermediate position between the industrialized countries and the Arab countries. In North Africa, the incidence rate is similar.

Table 2 Cancer data of commonly sites in female, Algeria, 2014.

Location	*Number of case*	*Crude rate*	*ASR*	*Median age*
Breast	10910	54.4	65.2	47
Colorectum	2245	11.2	16.1	56
Thyroid	1710	8.4	10.1	57
Cervix	1108	5.5	7.1	54
LNH	780	4.1	4.9	43
Gallbladder	675	3.5	4.5	57

Colorectal cancers

2245 new cases were recorded. Colorectal cancers are the 2nd common cancer observed in women cancers. The crude incidence rate per 100,000 inhabitants is 11.2, corresponding to standardized incidence rates of 16.1. The median age at diagnosis is 56 years. The colorectal cancer occupies an intermediate position between the industrialized and developing countries. In North Africa, we note the same incidence. The incidence remains low as compared to industrialized countries.

Thyroid cancer

1710 new cases of thyroid cancer have been reported. The crude incidence rate per 100,000 inhabitants is 8.4, while the standardized incidence rates are 10.1/ 100,000. This tumor affects 4.6 times more women than men. The median age is 56 years. The thyroid cancer occupies an intermediate position between the countries of Europe and North America and the Asian countries. In North Africa, the incidence rate is similar to Morocco but more significant than the other countries, Tunisia, Libya and Egypt and North of Setif which are high endemic for goiter disease.

Cervix

1108 new cases were recorded, the fourth cancer in women. This represents 5% of female cancers. The crude incidence rates is 5.5 per 100,000 women and standardized incidence rates is 7.1. The median age at diagnosis is 54 years. The cervical cancer occupies an intermediate position between industrialized countries and Arab countries.

Non hodgkin lymphoma

780 new cases of NHL were recorded. The crude incidence rate is 4.1, therefore a standardized incidence rates is 4.9. The median age of patients was 43 years the incidence are similar to Maghreb countries.

Cancer of the gallbladder

675 new cases of gallbladder and bile ducts cancer have been recorded. The crude incidence rate is 3.5. The standardized incidence rate is 4.5. It affects three times more women than men, and represents 4% of incident cancers in women. The median age was 57 years. Incidence of gallbladder and biliary cancer is very high. It's a feature of Algerian population. This high incidence is probably due to an endemic cholecyst disease. In North Africa, the incidence rate is 3 times higher than Tunisia and Morocco incidence.

Survival estimate rates

The Standardized net survival for adults (15-99 years) for cancers of stomach, colon, rectum, liver, lung, breast, cervix, ovary, prostate, and leukaemia were low (Table 3).

Table 3 Standardized net survival for adults (15-99 years) with common malignant tumors in Algeria.

Locations	*Survival estimates (%) with 95% CI*
Stomach	10.3 (6.7-14.0)
Colon	57.2 (45.6-68.9)
Rectum	45.5 (36.3-54.8)
Liver	17.5 (11.7-23.4)
Lung	14.8 (11.2-18.4)
Breast	59.8 (48.6-71.1)
Cervix	55.1 (49.8-60.4)
Ovary	41.8 (22.2-61.4)
Prostate	58.5 (51.2-65.9)
Leukemia (adult)	13.6 (6.7-20.5)
ALL (Children)	54.1(31.3-76.8)

Discussion

The cancer incidence studies showed a very clear geographical variation in the incidence of the disease. Cancer is becoming a new priority s in public health. The incidence of cancer is increasing and five years survival has been observed to be low, due to accessibility to care always difficult [25, 29]. This is an indicator of a deficient health system for cancer care. Access to health care is very difficult in Algeria. The main cause is the low health structures for diagnosis and treatment, essentially the radiotherapy which makes the improper diagnosis and treatment.

The analysis of the main places shows significant variability and lead to epidemiological studies, including risk factors. Breast cancer remains the most common cancer in women. It represents 51% of all tumors of women with of 10710 new cases, which corresponds to a gross annual incidence per 100,000 women is 54.4 and a standardized incidence of 65.2, male breast cancers account for less than 1%.

The breast cancer occurs in girls from ten years, the incidence increases rapidly from 15 years to reach a maximum incidence between 45 and 49. Breast cancer in women occupies an intermediate position between industrialized countries and Arab countries. In North Africa, the incidence rates are similar [3, 28-31]. The gallbladder cancer in women, occupies an important place in the countries of Asia and Europe [2, 32]. The high incidence is probably due to the highly endemic cholecystitis area [3]. The Thyroid cancer in women occupies an intermediate

position between the countries of Europe and North America and the Asian countries [13, 14]. In North Africa, the incidence rates are similar, and in the northern region of the Setif is highly endemic goitre [3].

The lung cancer ranks first in male population. It occupies an intermediate position between industrialized countries and Arab countries. The incidence of lung cancer is six times higher than that of women. The increase in the incidence of lung perfectly follows the increase in smoking prevalence in Algeria [1, 3]. The nasopharyngeal cancer is observed from ten years, with a bimodal distribution. The incidence of nasopharyngeal cancer is intermediate between the high incidences of Southeast Asia and the low incidence of industrialized countries. This high incidence is related to food and local environmental risk factors [1, 3]. The effect is similar with the other Maghreb countries, Tunisia and Morocco [28].

The colorectal cancers are the most common digestive cancers in men and women. Colorectal cancer ranks fourth in men and the second among women [3, 13]. The increase in bladder cancer and prostate also requires epidemiological surveillance. In man, the number of expected cases of lung cancer recorded by the Algiers Cancer Registry would be significantly higher cancer whose incidence in 2006 was 17.5 compared to 13.5 in Setif. The estimates colorectal cancer incidences from the Setif and Algiers are the same.

For cervix of the uterus and thyroid, there is not much difference between the standardized rates. In general, for the main locations, there is not much difference between the Algerian registries. Also found the same trend in the Maghreb [27]. Standardized net survival for adults (15-99 years) with common malignant tumors in Algeria is low compared in west countries.

Conclusion

Cancer is currently one of the major public health problems in Algeria. After 25 years of cancer registration in Setif, the study of the trend of main cancer, show a significantly increased incidence in men and in women. This increase is due to the epidemiological transition, marked by demographic change, increasing life expectancy, the transformation of the environment, life changes and food, particularly the increasing smoking. The five-year survival of cancer patients is low in Algeria as compared to other developed countries. The management of cancer registry is a vital tool for the information and epidemiological surveillance of cancer, and health monitoring. Much of these cancers can be prevented, while others can be detected at an early stage with proper health structure establishment. To effectively control the cancer, the National cancer Plan 2015-2019 initiated by the President of the Republic in December 2012, and implemented in January 2015. The development of cancer registries must institutionalize and connect national network. The fight against tobacco, responsible for one third of cancers should be implemented with immediate effect. An organized and perpetuated screening program, accompanied by a strategy of early detection of breast cancer and cervical cancer shall be implemented. The hope is the recent implementation of the National cancer Plan 2015-2019, for the decreasing of the cancer incidence and mortality.

Acknowledgements

We thank all the services and those who have contributed their data to the cancer registry of Setif: Dr. N. Abdellouche, Prof. S. Hamdi, Prof. A. Dib, Prof. A. Bendib, Pr. Benzidane, Prof. K. Bouzid A, Prof. A. Djemaa, Pr. Hamouda D, Pr. Fouatif A, Pr Bouzbid S, Pr. A Dib, Dr. S. Allouche and Pr. B. Bioud.

Conflict of interest

The authors declare no conflict of interest.

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