THE GREAT SOCIALIST PEOPLE'S LIBYAN ARAB JAMAHIRYA

SABRATHA CANCER REGISTRY

(A UNIT OF NATIONAL CANCER REGISTRY PROGRAM)

FIRST ANNUAL REPORT

POPULATION-BASED CANCER REGISTRY

2006

AFRICAN ONCOLOGY INSTITUTE
SABRATHA, LIBYA

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NATIONAL CANCER REGISTRY PROGRAM (NCRP) – LIBYA

Cancer is the ever increasing health problem and most common cause of medical deaths in Libya. In order to manage this problem in Libya, Secretary of General Committee has decided to tackle this problem urgently. One of the initial steps for cancer control in Libya has been the formation of National Cancer Registry Program.

The Secretary of General Committee of Health and Environment has decided to create the committee for preparing a draft of National Cancer Registry Program vide letter no 63/2007.

In pursuance of this order, the most important first step taken is the formation of cancer registries in Libya. This advancement is a big step to know about the magnitude of cancer in our country and for implementation of an effective cancer control strategy in Libya. As a part of this program, whole of the country of Libya is envisaged to be divided into five cancer registries vide letter no 214/2007 from the office of The Secretary of General Committee of Health and Environment. The formation of these registries will be a step-wise process. The brief outline of this program includes formation of following registries.

1. Benghazi Cancer Registry. This office will implement the National Cancer Registry Program in cities of Benghazi, Albatnan, Darna, Aljabal Alakhader, Almarg, Alwahat, Alkufra, and Ejdabiya.
2. Tripoli Cancer Registry. This office will implement the National Cancer Registry Program in cities of Tripoli, Aljafara, Almergaib, and Aljabal Algarbi.
3. Sabha Cancer Registry. This office will implement the National Cancer Registry Program in cities of Sabha, Morzuk, Wadi Alhiya, Wadi Shatee, and Ghat.
4. Musrata Cancer Registry. This office will implement the National Cancer Registry Program in cities of Musrata, Sirt, and Aljufra.
5. Sabratha Cancer Registry. This office will implement the National Cancer Registry Program in cities of Zawia, Alnikat, and Nalut.

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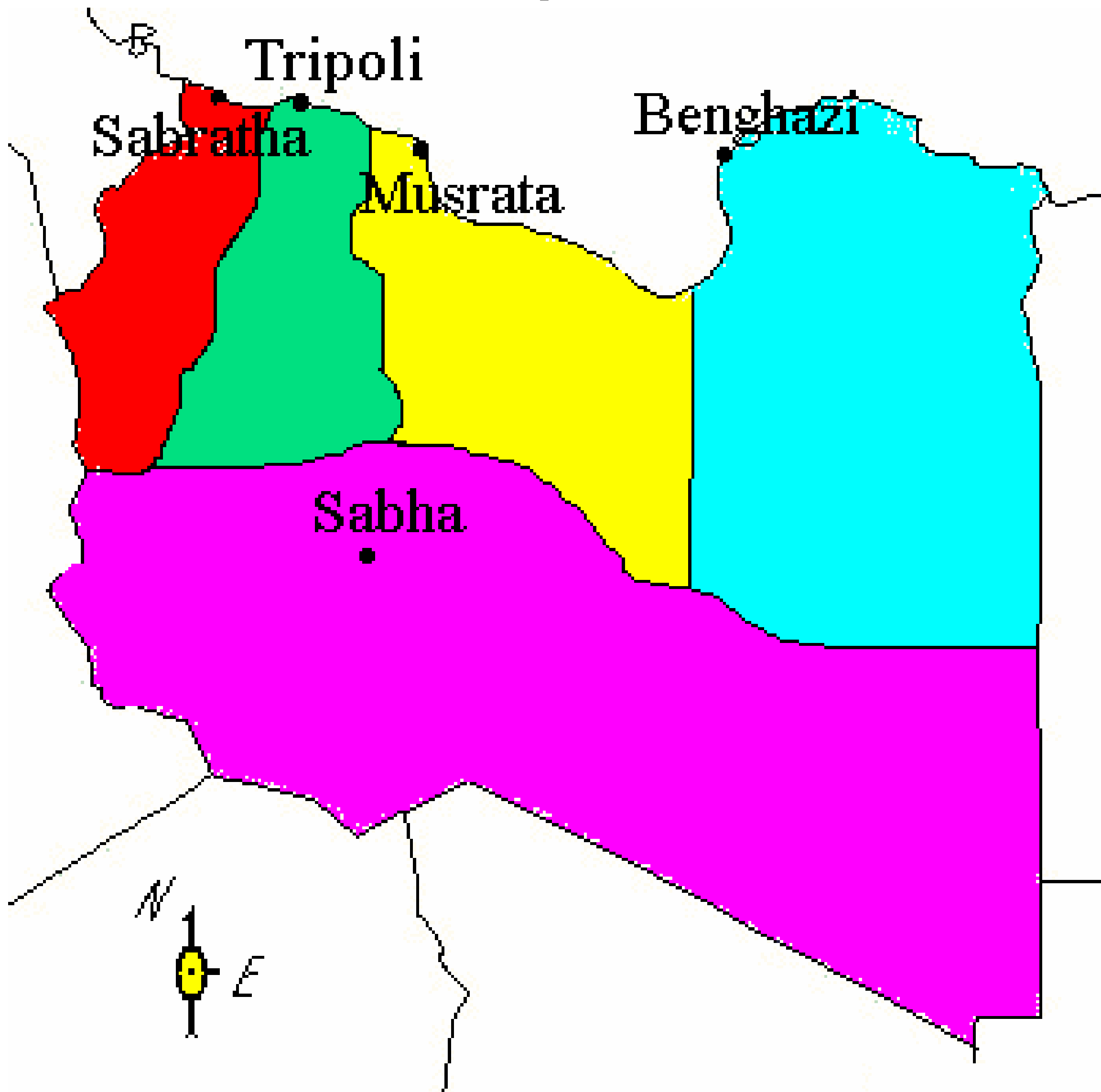


In accordance to the orders issued by The Secretary of General Committee of Health and Environment, the formation of Sabratha Cancer Registry has been initiated and the first report of Population-Based Cancer Registry from this region is presented here.

CHAPTER 2

DATA MANAGEMENT

DATA MANAGEMENT

INTRODUCTION:

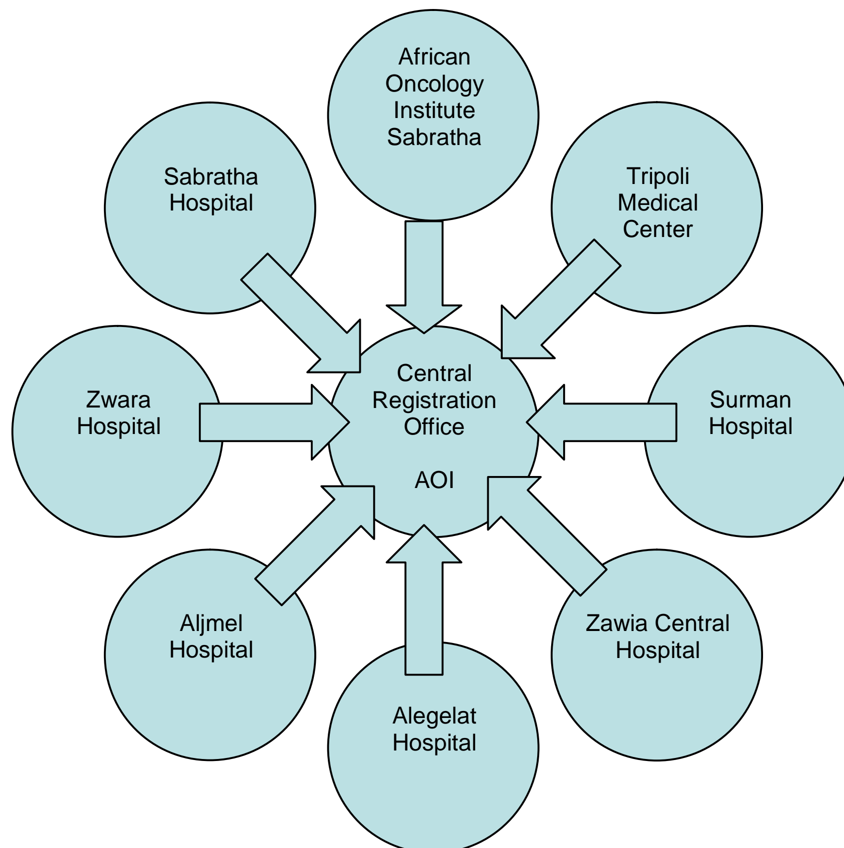
Approximately 10 million new cases of cancer are detected worldwide every year and are expected to increase to 15 million every year in near future. Factors which may have contributed to this rising cancer incidence; are increase in life expectancy, prevalence of certain infectious agents like EB virus and an increase in environmental pollution (in its variety and concentration both) which is associated with the development of certain cancers. The rising incidence of cancer in population with its associated mortality, morbidity, and cost effect highlights the need for an effective cancer control strategy globally as well as regionally. However, cancer control activities cannot be planned in an optimal way unless reliable data about the magnitude and pattern of occurrence of cancer is readily available. Establishment of an integrated well organised cancer registry is the first step towards the ultimate goal of effective cancer control. In addition, the hospital-based cancer registry provides important information that can help health planners, policy makers, and strategists in proper allocation and utilization of resources at any cancer institute. Data from the registry also gives an idea about quality of care given to patients and its influence on patient survival and the ultimate outcome.

The necessity of having an organised, sophisticated, integrated and up to the mark cancer registry was badly felt by health planners and researchers in Libya since a long time. This was an absolute necessity to enforce health planning with an optimised strategy and to achieve desirable cancer control in the country. On the basis of these hard facts and in order to be a part of modern health information system, a Cancer Registry Department was set up at the African Oncology Institute (AOI) Sabratha in 2006. This has two units, first is the population-based cancer registry covering western Libya and the other is hospital-based cancer registry at the AOI. The first report of hospital-based cancer registry has already been published last year. The data of population based cancer registry of western Libya is presented here.

SOURCE OF DATA:

The African Oncology Institute, Sabratha, is a 120-bedded facility dedicated to specialized care of cancer patients catering to the entire country. It has well staffed clinical departments including Medical Oncology, Surgical Oncology and Radiation Oncology backed by quality diagnostic and laboratory facilities and also acts as a higher referral center serving patients referred from all over the country. Multi-disciplinary management is carried out for all malignancies except for paediatric cases that are referred to Tripoli.

The AOI Sabratha hospital-based cancer registry is an integral part of hospital's cancer program. The population-based cancer registry for western Libya is also part of the same department. In addition to the data from AOI and six hospitals (Alegelat, Zumeil, Zwara, Sabratha, Zawia, and Surman) routinely provide data regarding cancer patients who were not registered at AOI.



This registry compiles data for estimates of cancer problem and forms an important source for epidemiological and clinical studies. This data is used for our organizational structure, disease process and therapeutic options, and planning of services for cancer patients in western Libya. This registry is a compulsory registration process for all patients registered at AOI (including benign and cases suspicious of malignancy). The process is supervised by a steering committee chaired by executive director of the institute.

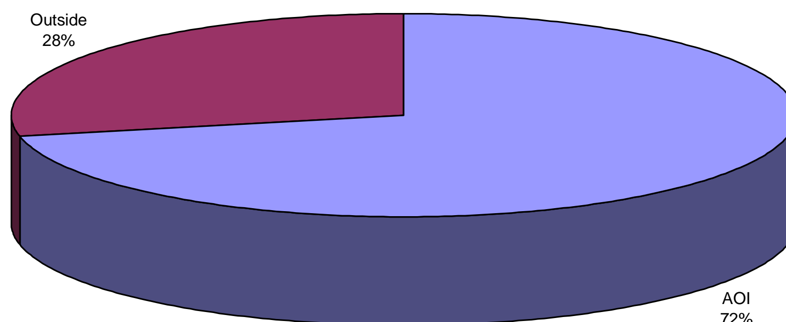
DATA ASSIMILATION:

The pro forma used for recording data was developed with the help of the IARC, Lyons, France. This form is filled in manually by physician of department registering the patient and sent to Department of Statistics and Registry. Site and morphology coding is done as per ICD-O (3rd edition) and staging is as per TNM staging manual (6th edition). To achieve uniformity, guidelines for filling pro forma, ICD-O codes (3rd edition) and TNM staging manual (6th edition) have been given to all concerned departments which act as source of data to our registry. The case records are sent to the registry for the first time after the initiation of treatment or 8 weeks after registration which ever is earlier. Here, this is coded and checked for consistency and quality control by physicians-in-charge.

After this check, the data from the pro forma is transferred to the computer and stored by especially trained clerk staff in CanReg 4 software provided by IARC which gives output as Microsoft Excel Format.

The data from centers outside AOI is obtained on a monthly basis and is compiled into the form of a spreadsheet. It is then integrated into data from AOI and finally analyzed to assess the program as a whole in western Libya. In the year 2006, a total of 338 cancer patients were diagnosed. Out of these, 242 were registered at AOI and the rest from outside centers. This is shown with a pie chart below.

SOURCE OF DATA, WESTERN LIBYA PBCR 2006

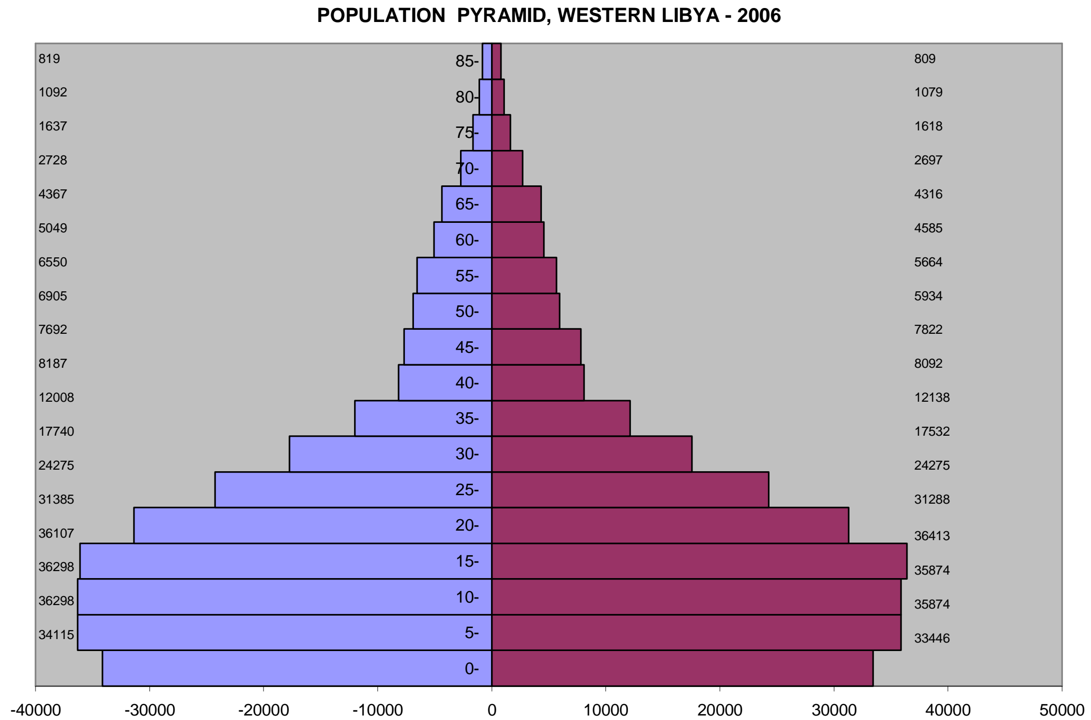


DATA PRESENTATION: This report provides an overview of the magnitude of the problem in the form of charts and statistical tables and where required it is accompanied by a brief description in text. The analysis includes age wise and sex wise distribution, calculation of crude rate, age-adjusted incidence rate, cumulative risk (0-74 years), and the comparison of observed incidence with US SEER data (2004), Eastern Libya (2003), Globocan estimates for Libya (2002), Egypt, Sudan, Chad, Tunisia, Algeria, Italy, and France. This being the first year of the registry, no analysis of survival has been done. In addition, all cases diagnosed with cancer have been included.

CHAPTER 3

OVERVIEW

POPULATION DEMOGRAPHICS:



Western Libya region includes the cities of Zawia, Surman, Sabratha, and Anikat. The region Anikat includes Algelait, Altawaila, Aljameil, Zwara, Zulten, Rigdalen, Abukamash, and Alassa. In the year 2006, this area had a resident population of 542,708.

The population pyramid of western Libya is in the form of pyramid with maximum population in the age group 5-10 years for both males and females. About 52 % of population belongs to the age group 0-15 years for both males and females. Fortunately, in the age group, incidence of cancer is the least. Currently, the age group of 65+ years, which carries maximum incidence of cancer, comprise about 4% of population. With continuously changing demographics and further improvement in health services, with the rise in elderly population, the incidence of cancer is expected to rise in future.

CANCER INCIDENCE:

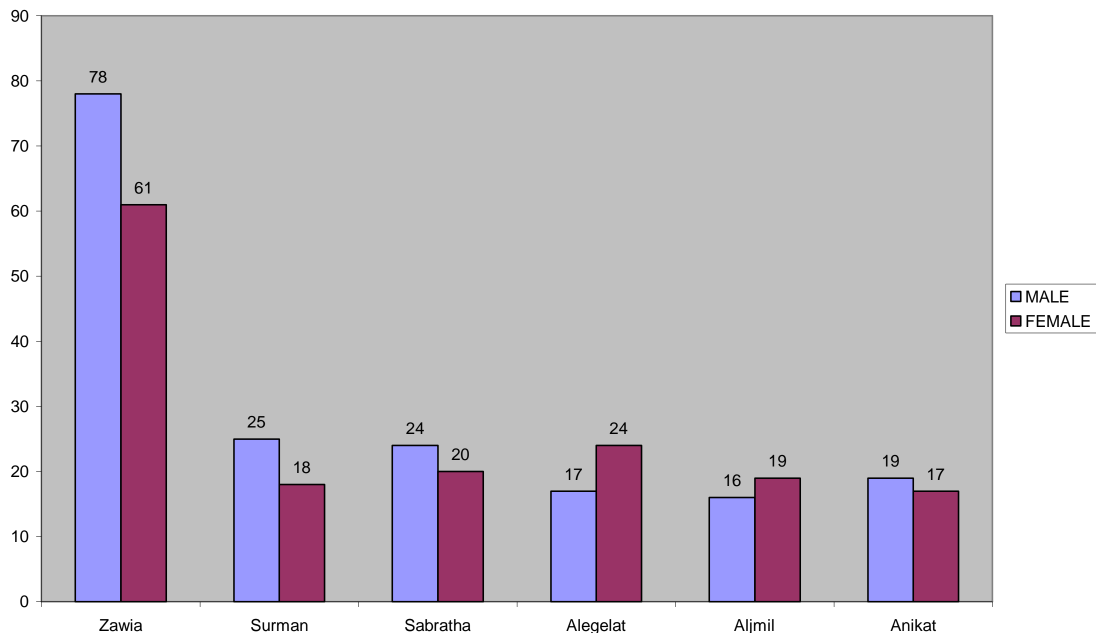
The crude rate for western Libya is 62.3 while the age-standardized rate is 104.75 per 100,000 population. This confirms with the prevalence of cancer in north Mediterranean region and indicate similar etiopathological nature of cancers in this region. Some of reported incidence rates are shown below.

Age-standardized rates per 100,000 population

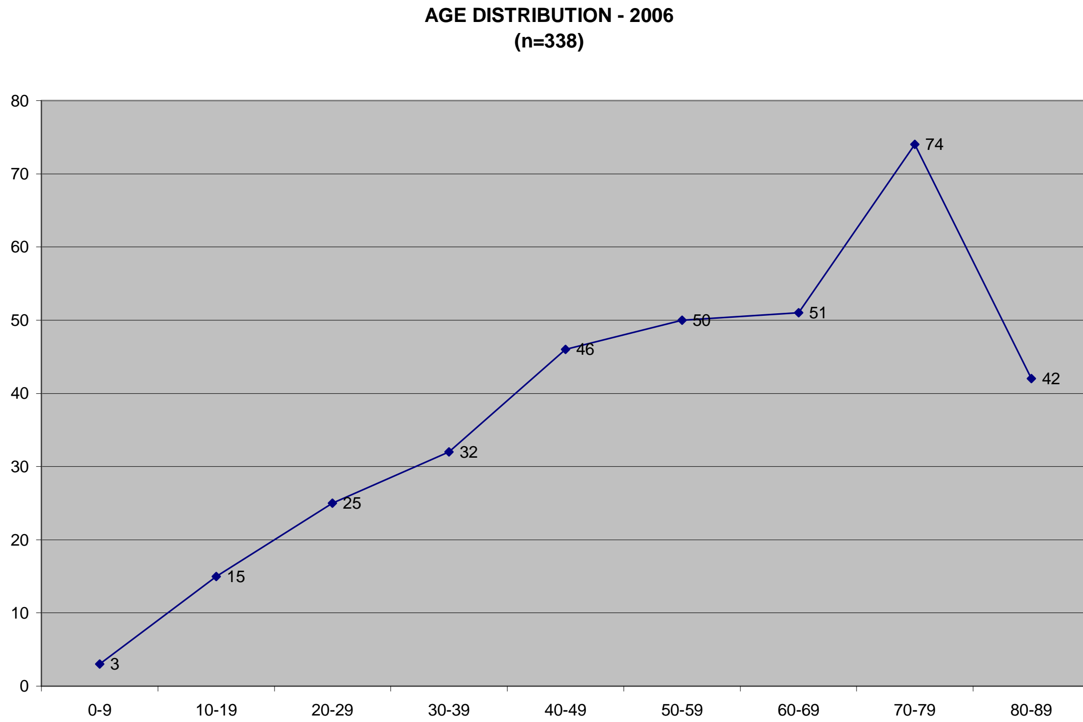
SOURCE (YEAR)	MALES	FEMALES
Benghazi (2003)	117.6	95
Algiers (1993-97)	86	86
Tunis (1994)	113	89
USA (1999-01)	364	286
Western Libya (2006)	**107.5**	**93.4**

REGION-WISE DISTRIBUTION:

The figure below shows the proportion of patients in various sub regions of western Libya. Maximum patients (40%) in this region are resident of Zawia. This is also the most populated sub region of western Libya. Cities of Sabratha, Surman, and Alegelat contribute to about 12% of patients each. The region Anikat includes population from Altawaila, Aljameil, Zwara, Zulten, Rigdalen, Abukamash, and Alassa

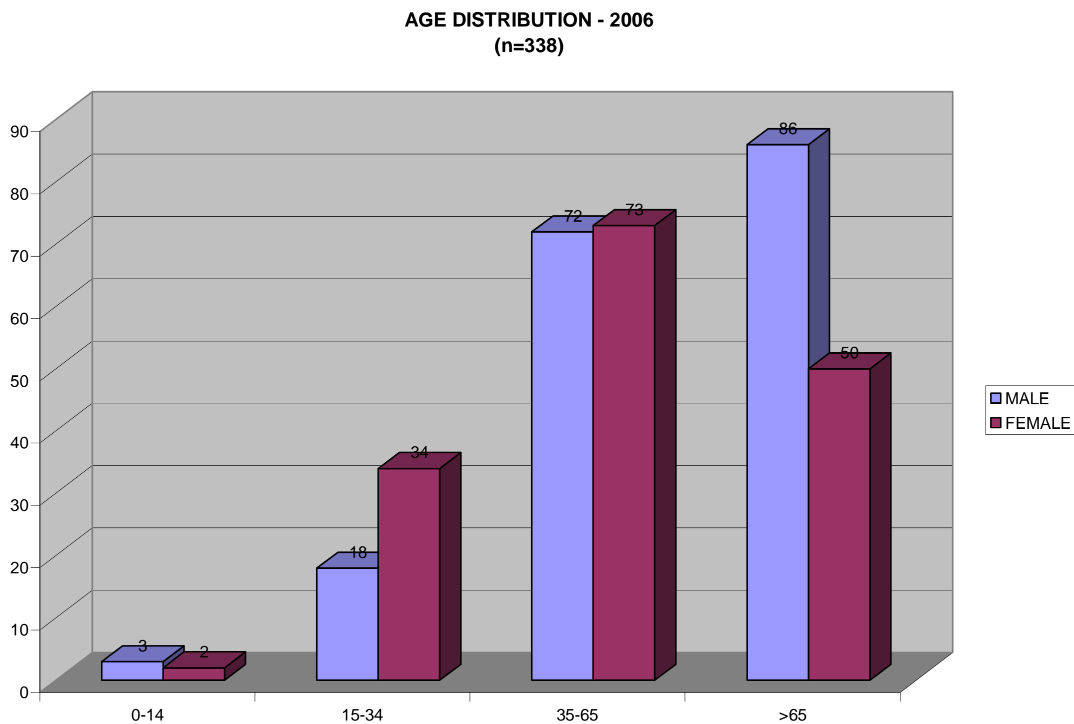


AGE DISTRIBUTION:

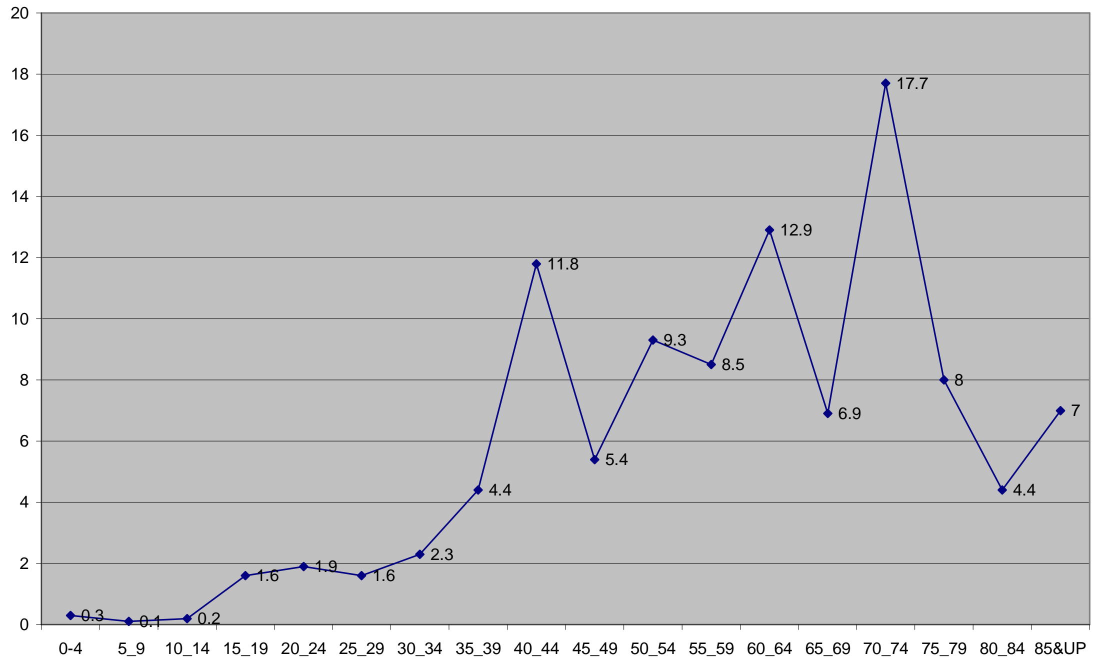


The age distribution from population-based cancer registry is shown in figure 6. This figure shows continuous rise in number of cancer cases with increasing age. The maximum number of cases (22%) are in the elderly population with age group 70-79 years. The small fall in the age group 85+ may be due to this age group having smallest population.

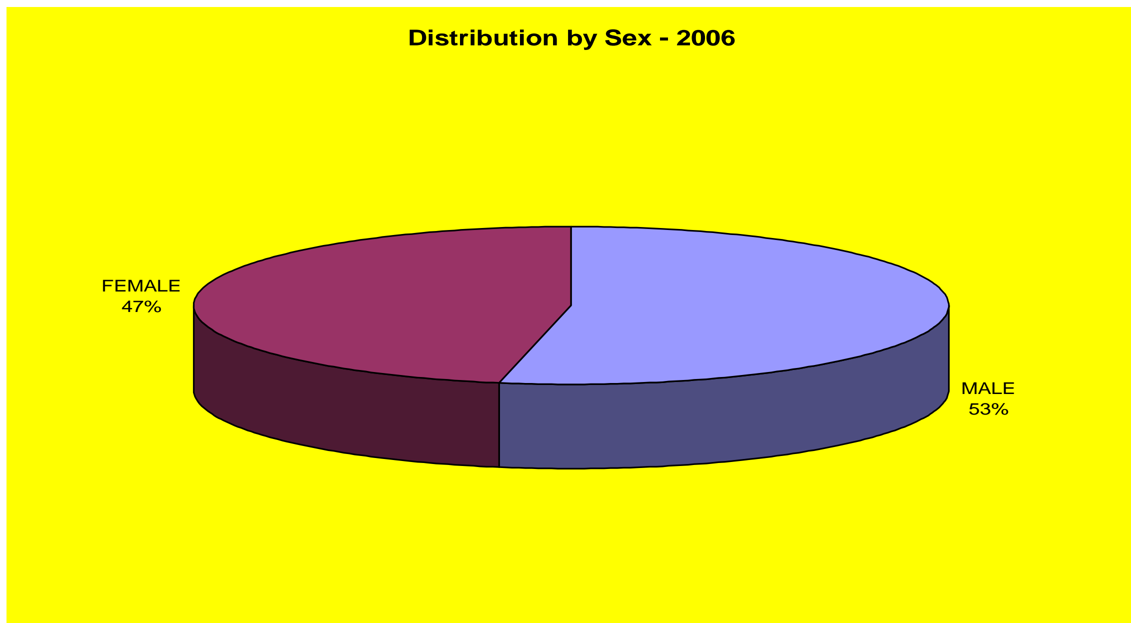
The distribution in broad age groups namely pediatric, adult, and elderly is shown in figure 5 with sex wise distribution. The age group of adults is further subdivided here into younger adults and older adults and the difference in sex ratio is highlighted by this division. In fact, the number of female cancer patients is highest in the age group 15-34 where it is double the number of male cancer patients. This exceptional pattern is due to high prevalence of breast cancer in this age group which is a rare tumor in male population. The reverse is seen for elderly population because of cancer prostate being highest contribute to male cancer patients of this age and this is absent in females.



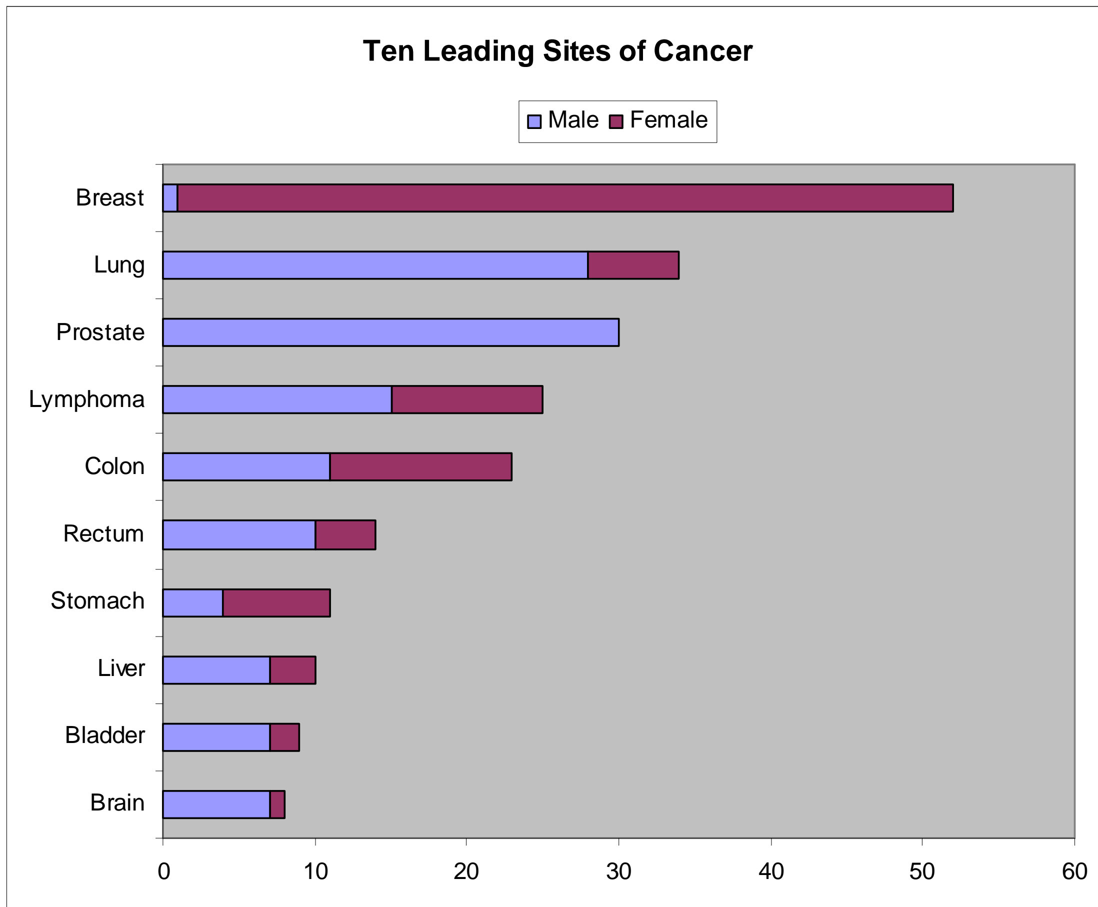
The age-standardized cancer incidence is shown in figure 7. This depicts a progressive rise in cancer incidence with increasing age. The zigzag pattern in the age group above 40 years is because of statistical insignificance of data. The plot of 10-year groups rectifies this anomaly.


AGE-STANDARDIZED RATE (per 100,000 population) - 2006
20
18
16
14
12
10
8
6
4
2
0
0.3
0.1
0.2
1.6
1.9
1.6
2.3
4.4
11.8
5.4
9.3
8.5
12.9
6.9
17.7
8
4.4
7
0-4
5_9
10_14
15_19
20_24
25_29
30_34
35_39
40_44
45_49
50_54
55_59
60_64
65_69
70_74
75_79
80_84
85&UP

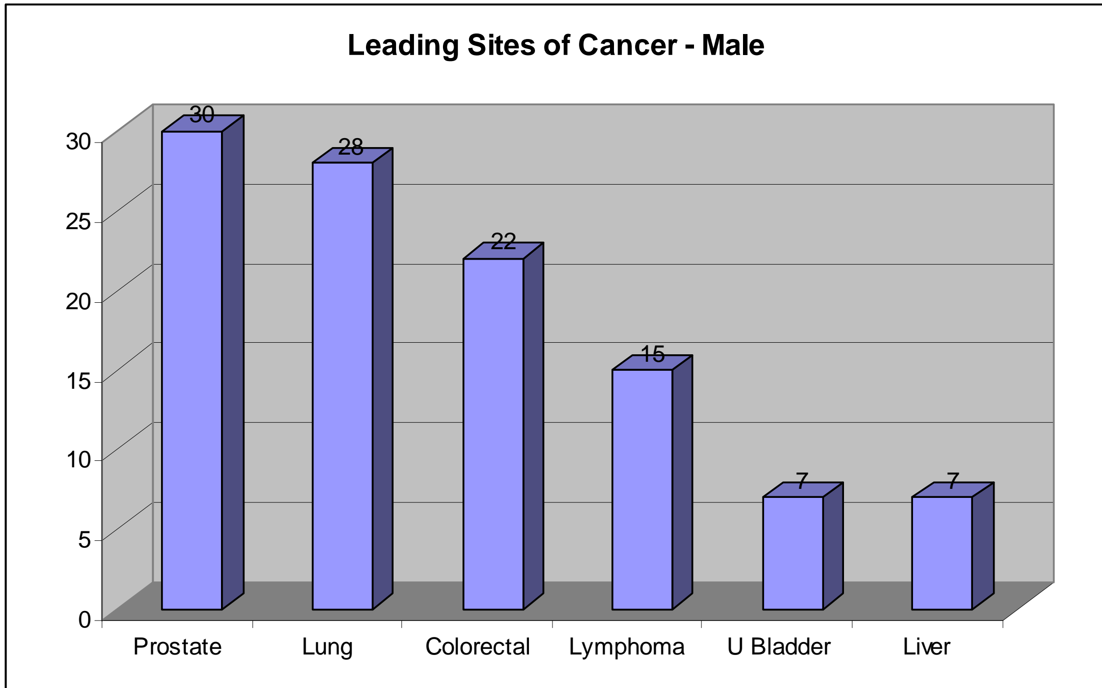
SEXWISE RATIO:
As depicted in figure 4, males constitute 53% of cancer patients while females constitute 47% of cancer patients. This difference is due to difference in incidence at various sites. Notably, prostate cancer (males only), breast cancer (females only), lung cancer (M:F = 4:1), urinary bladder cancer (M:F = 7:3), liver cancer (M:F = 4:1), and brain malignancies (M:F = 7:3) are mainly responsible for these sex wise distribution differences.



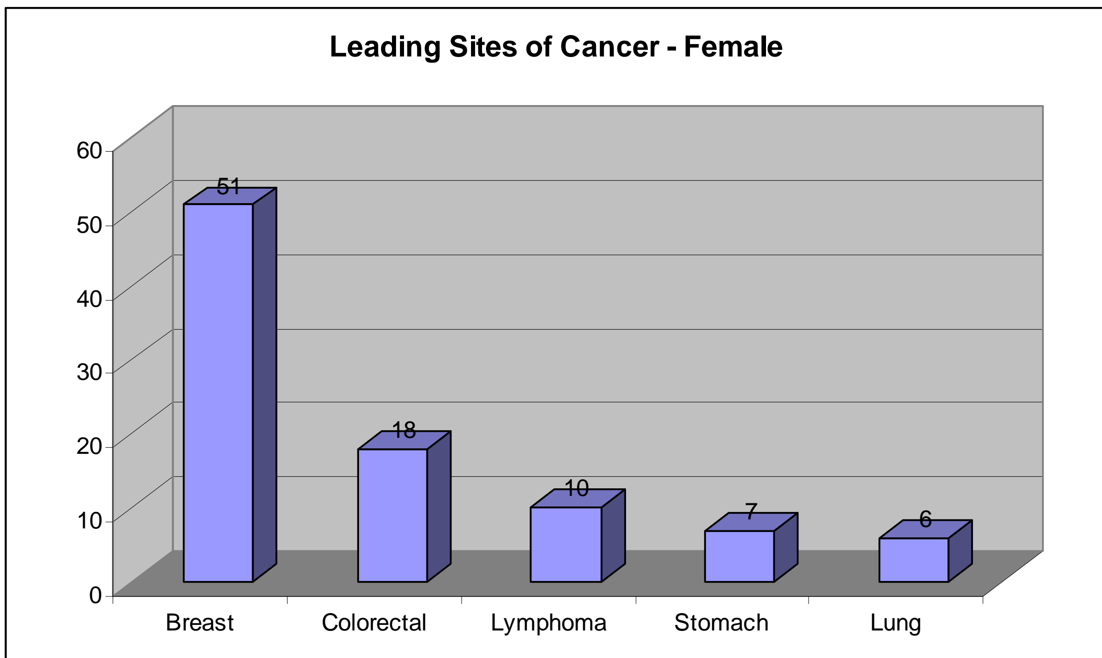
LEADING SITES OF CANCER:
The most common cancer in western Libya is cancer of breast (23%), closely followed by cancer of lung (15%). Together, cancer breast and cancer lung comprise about 40% of all cancer patients. The 10 leading sites of cancer are shown in figure below.



In Libyan males, six commonest sites are shown in figure below. Cancer prostate is the commonest cancer closely followed by cancer of lung. Both of these cancers comprise about 60% of male cancer patients and carry a relatively worse prognosis. This distribution can be one of the main reasons for overall dismal cancer cure rates in our country. Fortunately, both of these cancers occur in elderly population and they are the main reason for peak incidence of cancer in population aged more than 65 years.

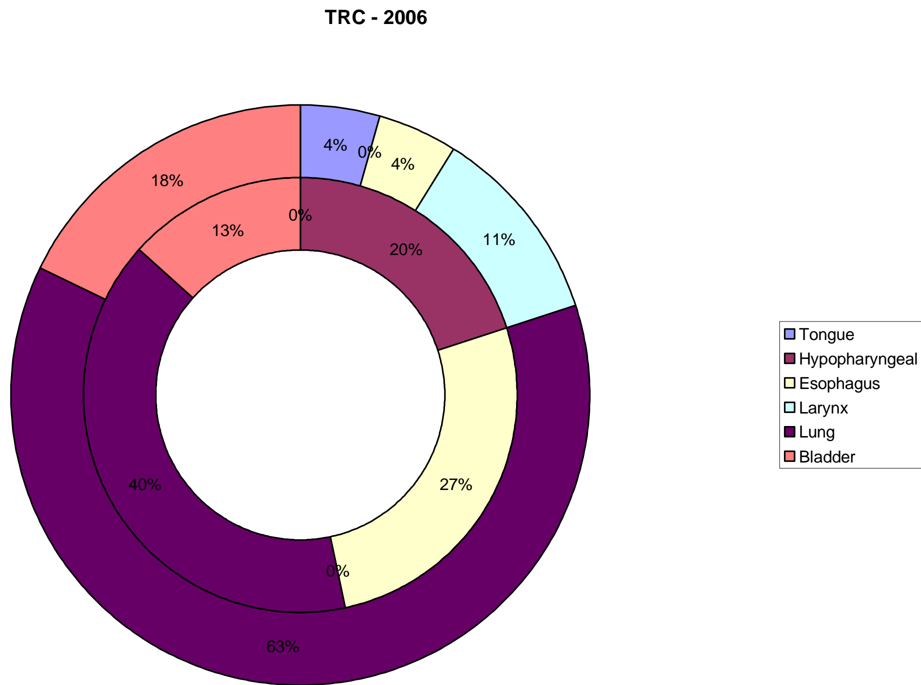


In Libyan females, cancer of breast is the commonest cancer and is responsible for one-third of cancers in females. In contrast to cancer of lung and prostate, this occurs in relatively younger age and contributes to relatively higher proportion of female cancer patients in the age group 15-34. Cancer breast is also responsible for the peak ASR in age group 40-44 where it constitutes about 35% of all cancers in both sexes while in females of this age group cancer breast comprises about 75% of all cancers.



TOBACCO-RELATED CANCERS:

Morphological sites of cancer that have been associated with use of tobacco smoking (TRC) include oral cavity (lip and tongue), pharynx (oropharynx, larynx, and hypopharynx), esophagus, lung, and urinary bladder. Amongst these, cancer of lung is the most common site found in western Libya. Relative proportion in males and females is shown below.



CHAPTER 4

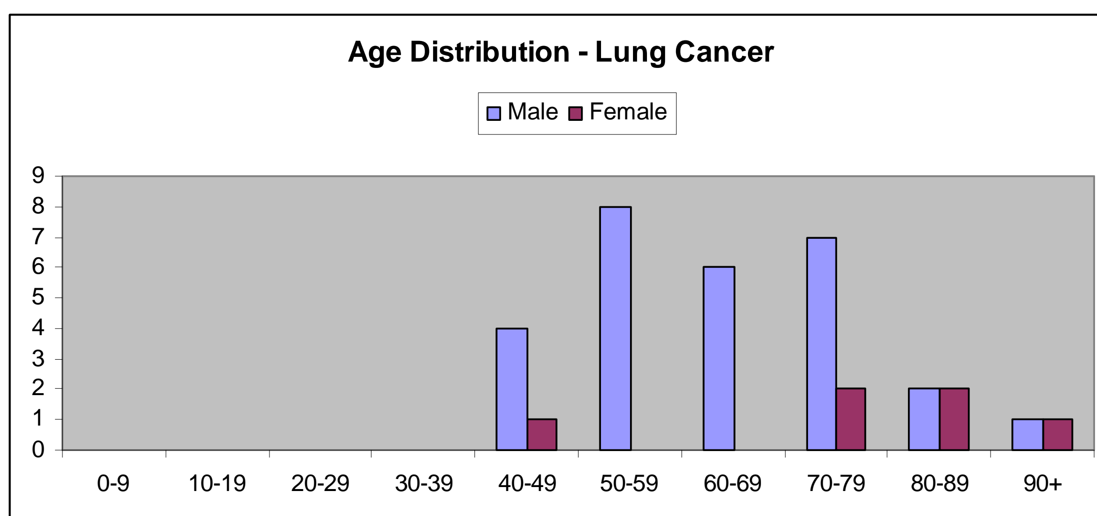
SITE WISE DISTRIBUTION

SITE WISE DISTRIBUTION

CANCER LUNG:

Cancer of lung is overall the third commonest cancer (after breast and prostate) in western Libya and contributes to 10% of all cancer cases found in this region. This is a tobacco-related cancer and 2nd most common cancer in males and 5th most common cancer in females. The incidence rises progressively with increasing age and 62% patients are above the age 60 years. Males constitute majority of these cancer lung patients (82%). This clearly reflects that cigarette smoking is a prevalent male habit in our society. The ratio of female smoking in Libya is almost negligible.

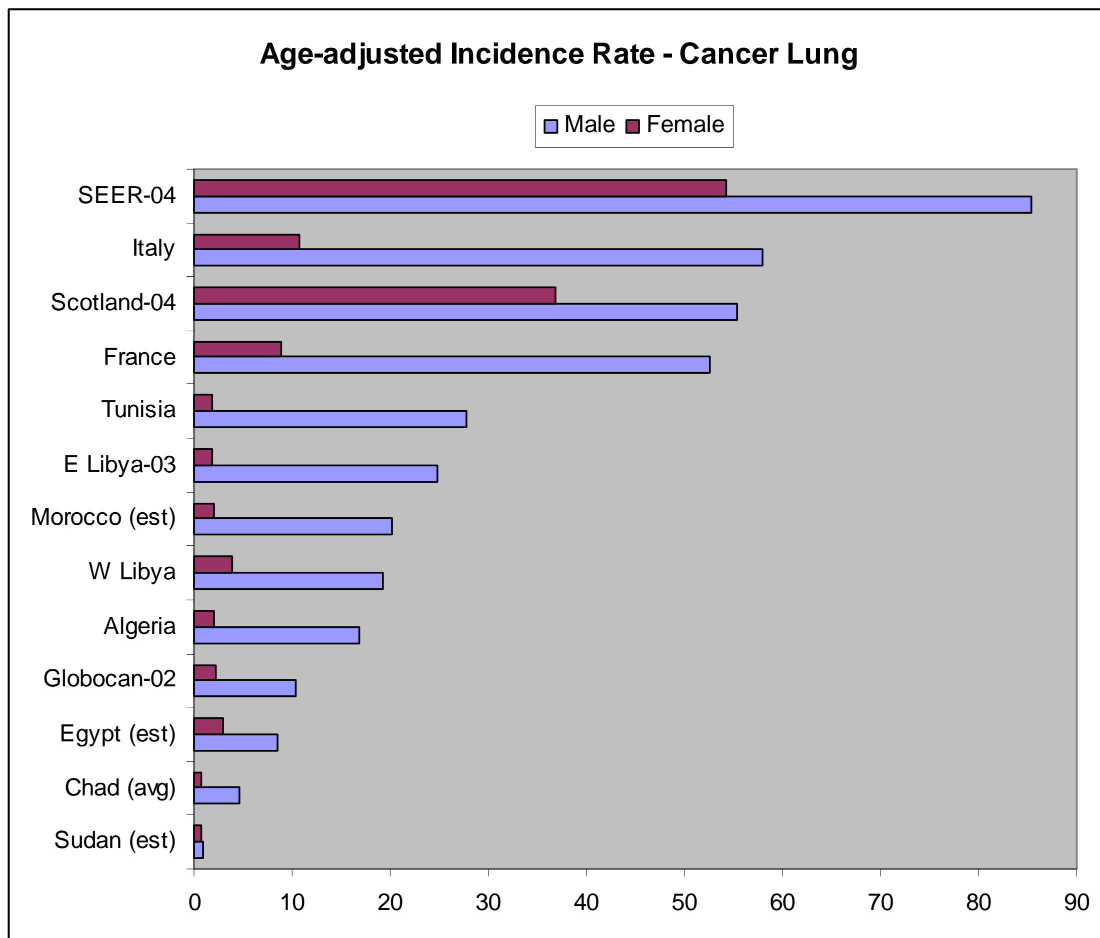
	Male	Female
Cases	28	6
%	16	3.9
Median Age	62	78
Crude Rate	10.25	2.23
ASR (World)	19.27	3.92
Cumulative Risk	2.53	0.43



We compared the analysed data of western Libya with available and accessible published data of cancer registries around the globe. When compared to SEER (Surveillance, Epidemiology, and End Results Program) data, the age-specific incidence rate in Libya is remarkably less as compared with United States, France, Italy, and Scotland but comparable to rates reported from our neighboring countries.

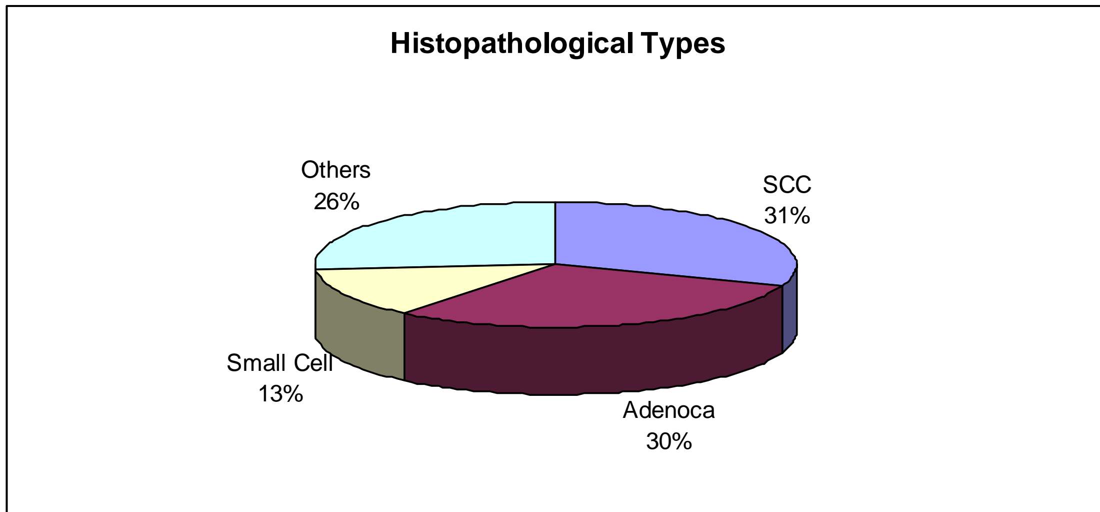
Worldwide statistics show that the lung cancer ASRs for males in other Middle Eastern populations, such as Algeria (17.1) and Kuwait (20.0) were close to that in Jordan (16.4). The ASRs rate on the other hand in Western hemisphere, such as Canada (59.0) and Ireland (42.3), were similar to that in United States. The female ASRs in Algerians (1.9) and Omanians (2.6) were somewhat lower than that found in Jordanians (3.1), Egyptians (3.7), and Arabs in occupied Palestine (4.8), but Kuwaitis (5.3) had a slightly higher rate

	Male	Female
SEER-04	85.3	54.2
W Libya	**19.3**	**3.9**
E Libya-03	24.8	1.9
Scotland-04	55.4	36.8
Globocan-02	10.4	2.2
Algeria	16.9	2.0
Tunisia	27.8	1.9
Egypt (est)	8.6	2.9
Morocco (est)	20.1	2.0
Sudan (est)	1.0	0.8
Chad (avg)	4.7	0.7
Italy	58.0	10.7
France	52.6	8.8



Histopathologically, both squamous cell carcinoma (7/23) and adenocarcinoma (7/23) each contributes to 30% of all lung cancer types. Small cell carcinomas constitute 13% of

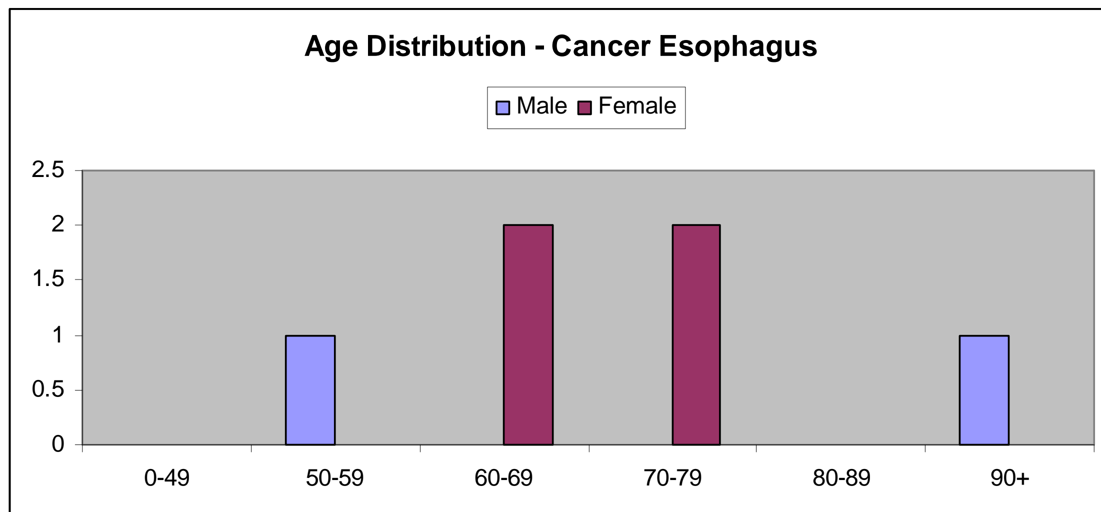
cancers. Other reported types included adenosquamous, large cell, neuroendocrine, undifferentiated, and unspecified carcinomas.



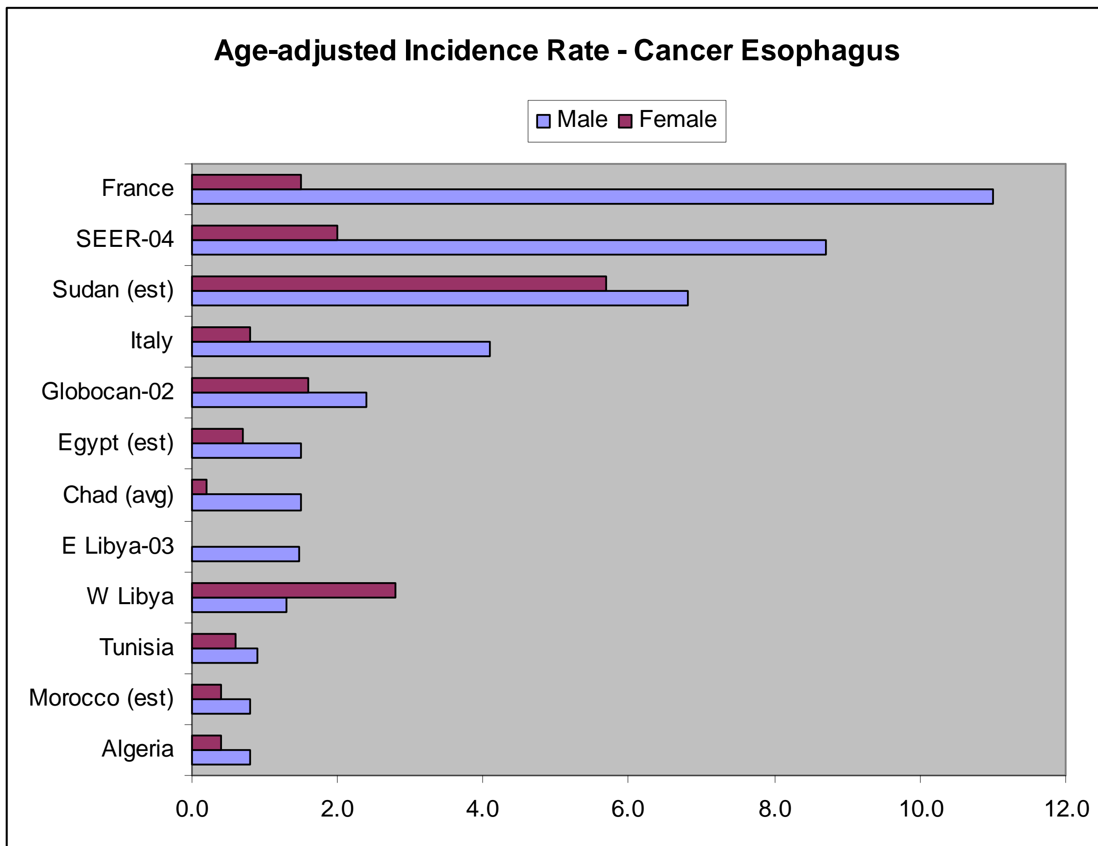
CANCER ESOPHAGUS:
Cancer of esophagus is the 16th commonest cancer in western Libyan population and contributes to 2% of all cancer cases. This is also believed to be a tobacco-related cancer and yet is more common in predominantly non-smoking female population in this region. This unusual finding may be due to lack of statistical significance of the data, as only 6 cases of cancer esophagus being registered during the year 2006. The incidence rises with increasing age and 83% of all patients are above age 60 years. The age-specific incidence rates are relatively less when compared to worldwide incidence rates (especially from SEER, France, and Italy) but close to the incidence reported from Egypt, Chad, and Tunisia.

All of available histopathologies were adenocarcinomas (4/4). This can be attributed to alcohol-free society with a higher incidence of obesity.

	Male	Female
Cases	2	4
%	1.1	2.6
Median Age	72	67
Crude Rate	0.73	1.48
ASR (World)	1.33	2.75
Cumulative Risk	0.07	0.41



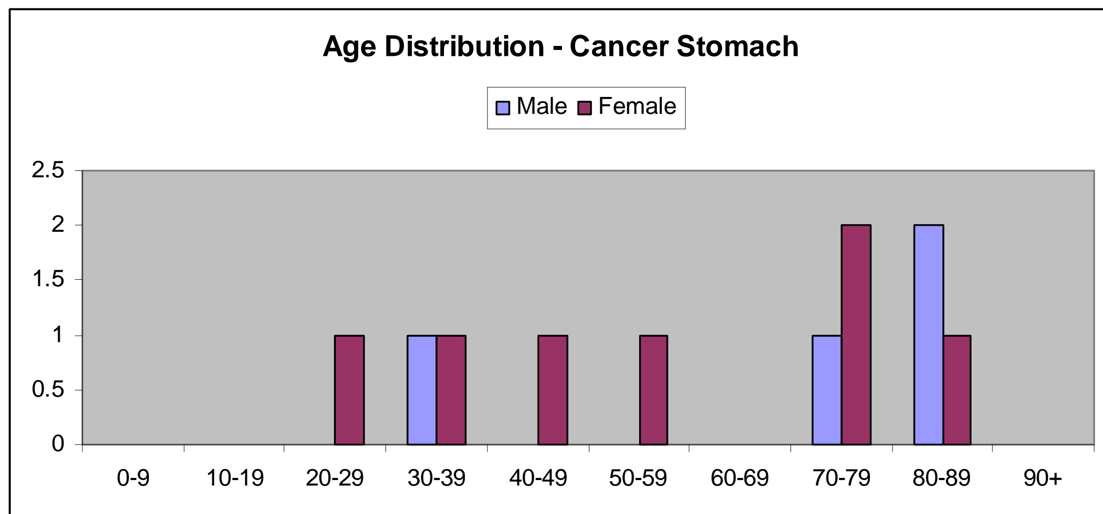
	Male	Female
Algeria	0.8	0.4
Morocco (est)	0.8	0.4
Tunisia	0.9	0.6
W Libya	**1.3**	**2.8**
E Libya-03	1.5	0.0
Chad (avg)	1.5	0.2
Egypt (est)	1.5	0.7
Globocan-02	2.4	1.6
Italy	4.1	0.8
Sudan (est)	6.8	5.7
SEER-04	8.7	2.0
France	11.0	1.5



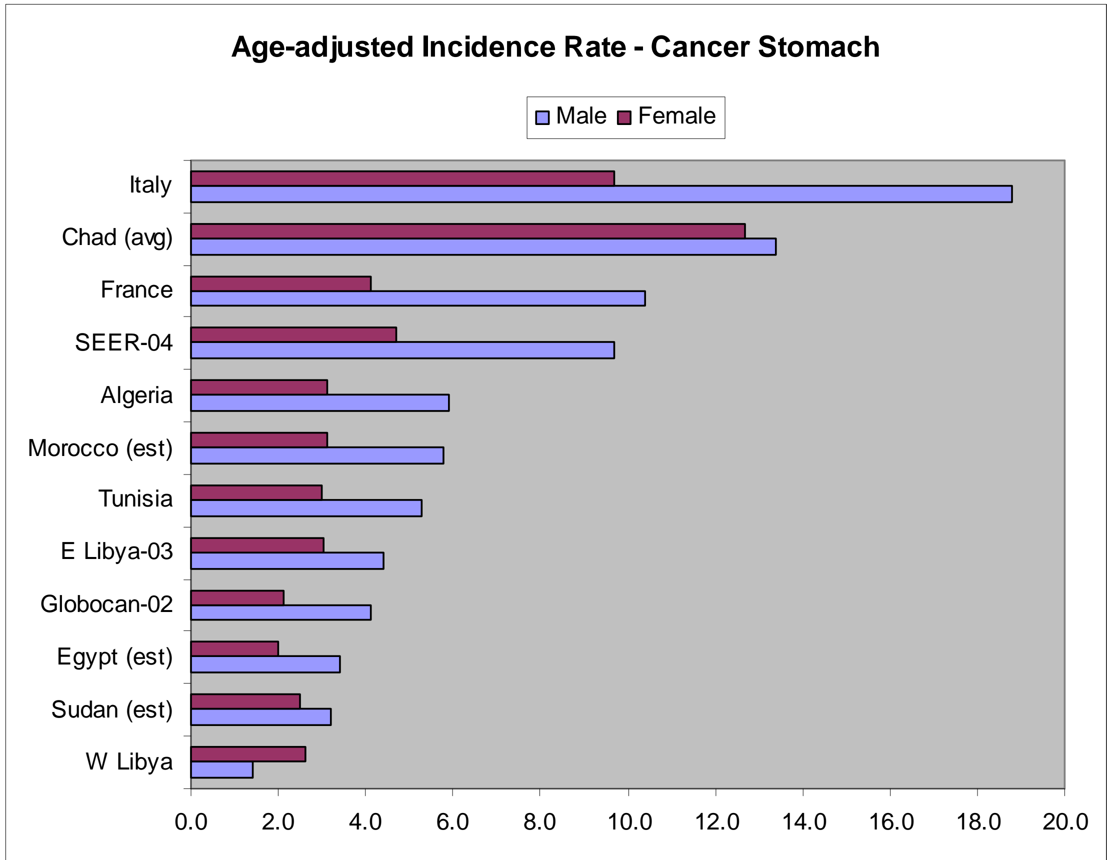
CANCER STOMACH:

Cancer of stomach is the 8th commonest cancer in western Libya and contributes to 3.3% of all cancer cases. Similar to cancer esophagus, gastric cancer is also found to be more common in females with male to female ratio of 1:2. This unusual finding is not reported from other countries but repeatedly seen in both eastern as well as western Libya, making it a comparatively significant in this country. The incidence rises with increasing age as in uniformity with esophageal cancer and 83% patients are above the age 60 years. The age-specific incidence rates are relatively less as compared to worldwide incidence data and lowest amongst all neighboring countries.

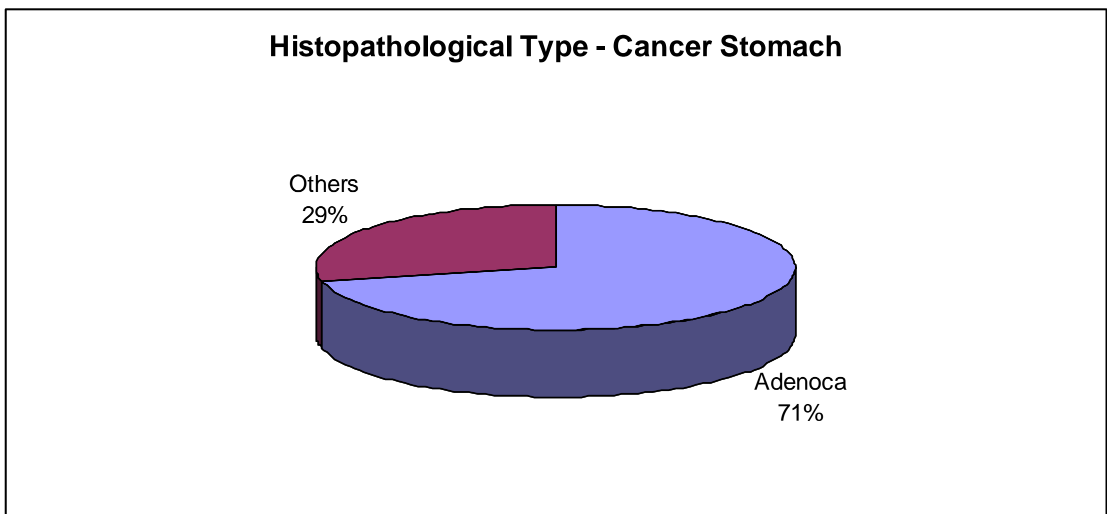
	Male	Female
Cases	4	7
%	2.3	4.6
Median Age	77	55
Crude Rate	1.46	2.60
ASR (World)	2.29	3.89
Cumulative Risk	0.21	0.21



	Male	Female
SEER-04	9.7	4.7
W Libya	**1.4**	**2.6**
E Libya-03	4.4	3.0
Globocan-02	4.1	2.1
Algeria	5.9	3.1
Tunisia	5.3	3.0
Egypt (est)	3.4	2.0
Morocco (est)	5.8	3.1
Sudan (est)	3.2	2.5
Chad (avg)	13.4	12.7
Italy	18.8	9.7
France	10.4	4.1



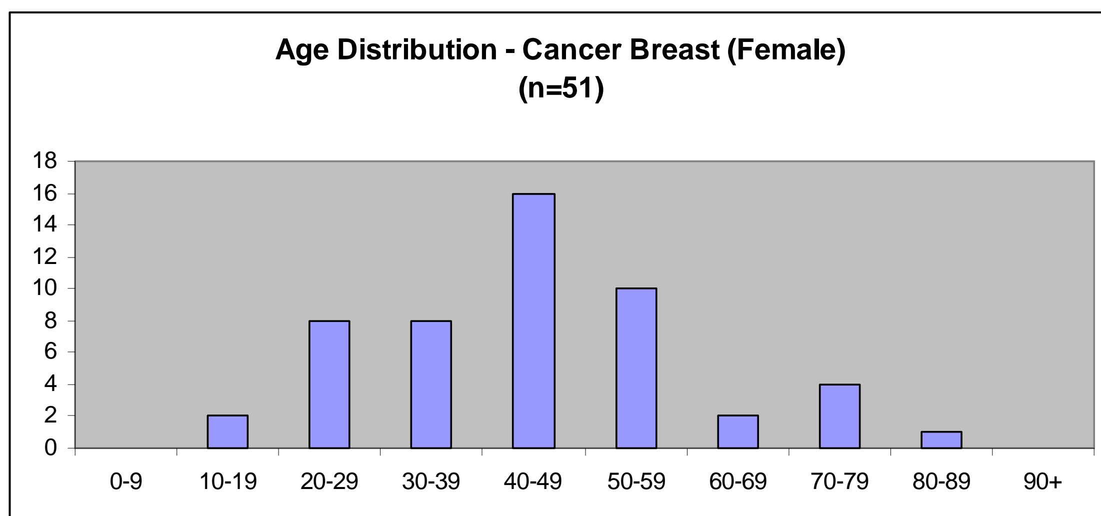
Histopathologically, majority of tumors were adenocarcinoma (5/7). Others included leiomyosarcoma and undifferentiated carcinoma.



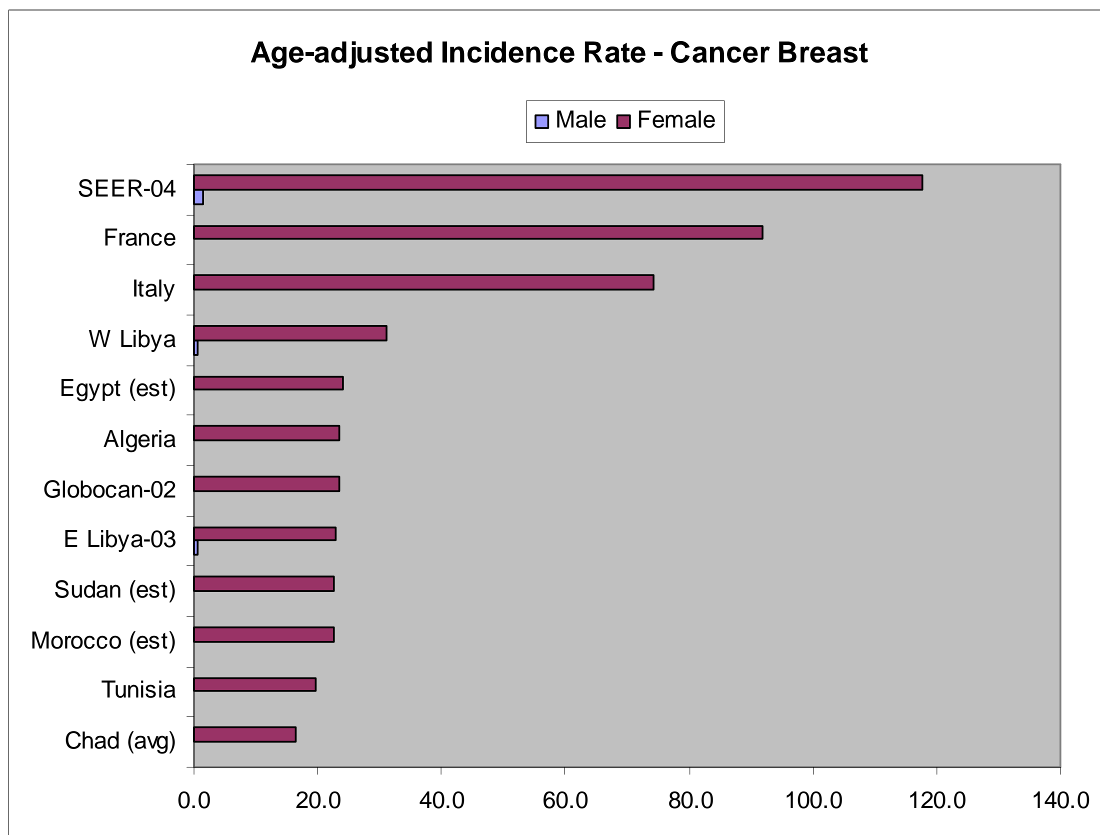
CANCER BREAST:
Cancer breast is the commonest cancer in females in Libya as seen globally in almost every country of the World. Breast cancer in Libya contributes to 33% of all female cancer patients. Peak incidence is seen in the age group 44-49 years where it contributes to one-fourth of all breast cancer patients. This peak of breast cancer is the fundamental reason for increased number and ratio of female cancer patients in younger female adults especially in the age group 35-64. The mean age for breast cancer is 43 years and median is 42 years. This relatively younger age at presentation is remarkably less when compared to worldwide pattern. A very similar observation has been reported by eastern Libya cancer registry where contributors have additionally suggested to embark upon research study to evaluate the role of known or yet un-identified genetic factors among African women. The incidence falls slowly over elderly age group as shown in age-distribution chart below.

Histopathologically, majority of tumors were invasive ductal carcinoma (23/38). Others included intraductal cancers (11/38), adenocarcinoma (2/38), lobular carcinoma (1/38), and medullary carcinoma (1/38).

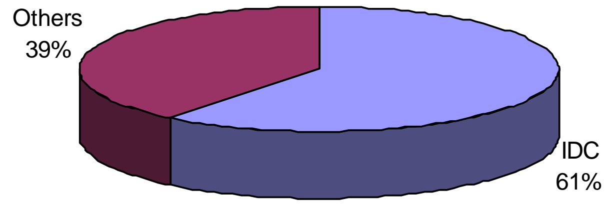
	Male	Female
Cases	1	51
%	0.6	33.1
Median Age	37	42
Crude Rate	0.37	18.93
ASR (World)	0.50	31.14
Cumulative Risk	0.04	3.19



	Male	Female
SEER-04	1.4	117.7
W Libya	**0.5**	**31.1**
E Libya-03	0.6	22.9
Globocan-02	-	23.4
Algeria	-	23.5
Tunisia	-	19.6
Egypt (est)	-	24.2
Morocco (est)	-	22.5
Sudan (est)	-	22.5
Chad (avg)	-	16.5
Italy	-	74.4
France	-	91.9



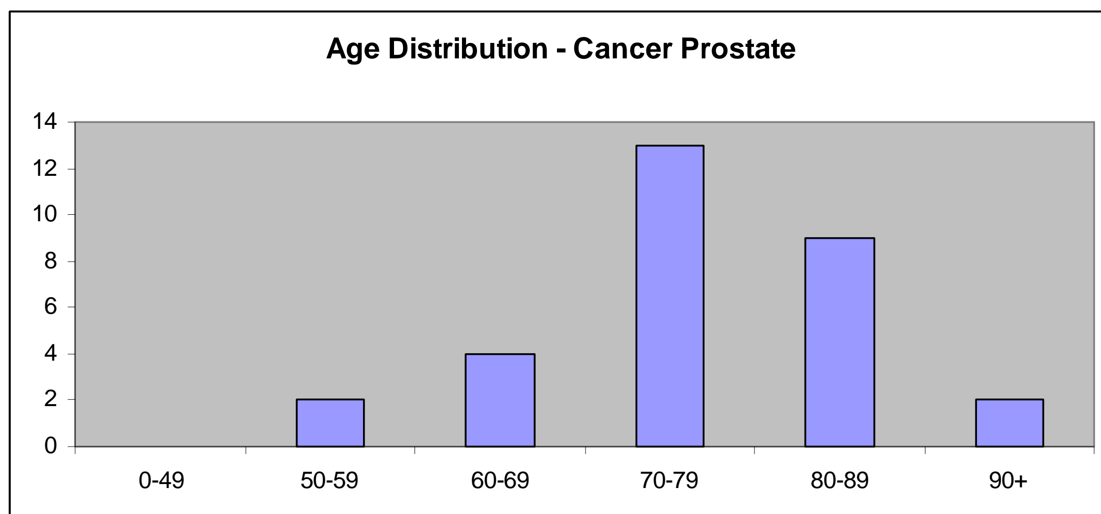
Histopathological Types - Cancer Breast



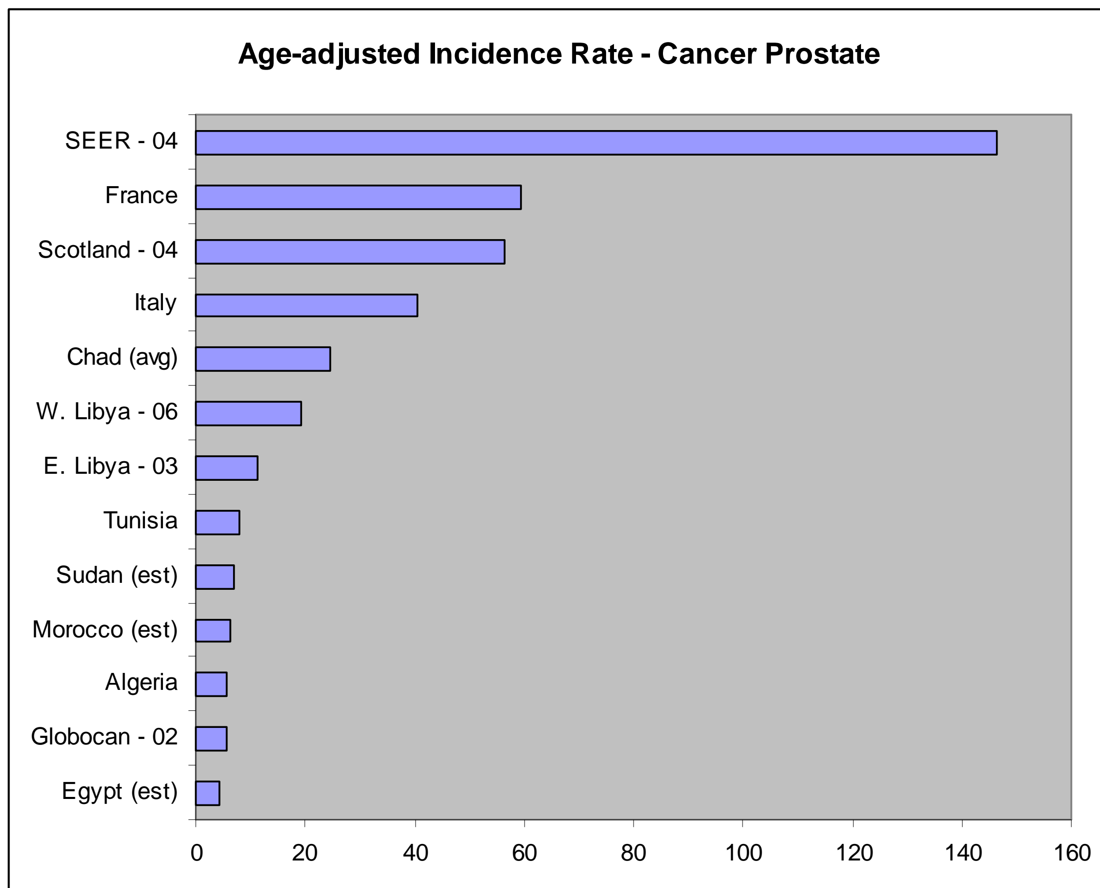
CANCER PROSTATE:
Prostate cancer is the commonest male cancer found in western Libya and contributes to 17% of all male cancer patients. The incidence rises with increasing age consistently and uniformly and 93% patients are over 60 years age. Increased utilization of PSA (prostate specific antigen) screening in elderly males will help earlier diagnosis and may result in a significant fall in age at presentation. PSA screening thus identify early, quiescent, clinically undetectable and insignificant cancer prostate in old age group. It creates a somewhat scare mongering in the geriatric population. This screening can however be a tool to detect prostate cancer in younger age group with significant post treatment impact on survival and morbidity. The age-specific incidence rates are much less as compared to worldwide incidence in western population, a PSA screening program impact.

Histopathologically, all of tumors were adenocarcinoma (21/21).

	Male
Cases	30
%	17
Median Age	72
Crude Rate	10.9
ASR (World)	19.1
Cumulative Risk	2.38



	Male
Egypt (est)	4.4
Globocan - 02	5.6
Algeria	5.6
Morocco (est)	6.4
Sudan (est)	7.1
Tunisia	8.1
E. Libya - 03	11.4
W. Libya - 06	19.1
Chad (avg)	24.5
Italy	40.5
Scotland - 04	56.3
France	59.3
SEER - 04	146.3



COLORECTAL CANCER:

Colorectal cancers were grouped into two categories in ICD-9 but into three categories in ICD-O by constituting rectosigmoid cancers (C19) as the third category, in addition to pure colonic and rectal cancer. In 2006 data analysis, 40 patients were found to have colorectal cancers and the site and sex-wise distribution is shown below. Overall, cancer colon is the 4th commonest cancer in our population while cancer rectum is 6th commonest.

	Male	Female
Colon	11	12
Rectosigmoid	1	2
Rectum	10	4
Total	22	18

These cancers are seen more frequently in younger population with peak incidence for cancer colon in forties and cancer rectum in fifties. This age distribution in younger age may be an environmental, dietary, or genetic effect. This however may have an effect in survival data as young age cancers might be more aggressive. The age distribution is shown in figure below. The universal preference for colonic cancers compared to distal sites is also obvious in our country. In addition, low incidence-rate ratio (1.1) of colonic versus rectal cancer in males closely matches the pattern in industrialized European nations in comparison to data reported from Egypt or Jordan (MECC). Comparative age-adjusted incidence rates are shown in table as well as figure. The age-adjusted incidence rate for colorectal cancers in western Libya is closer to global incidence of 20.1 per 100,000 for males and 14.6 per 100,000 for females but higher than reported from all other countries from southern Mediterranean region.

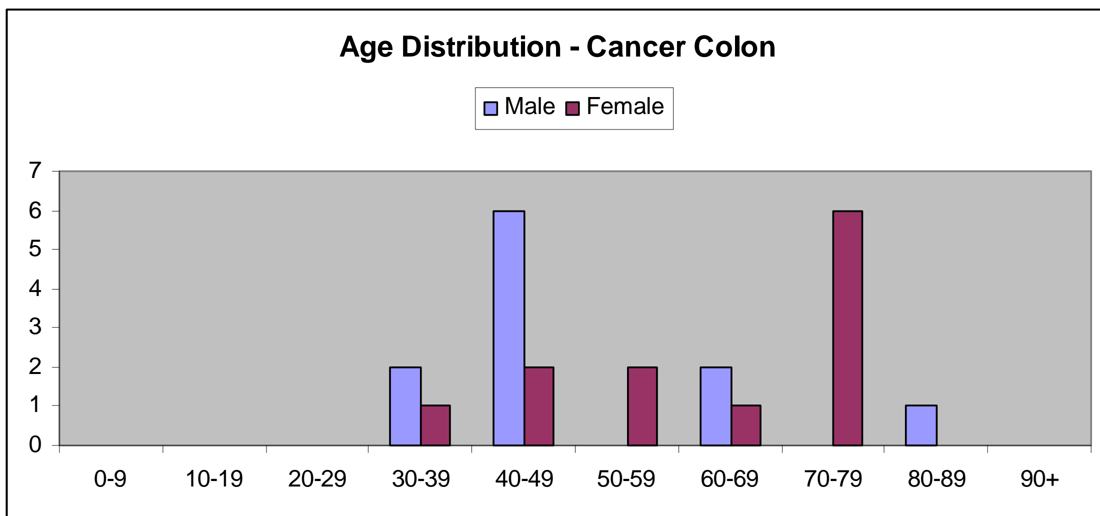
Histopathologically, all the patients with colorectal cancers had adenocarcinoma (24/25) except for 1 patient with carcinoid.

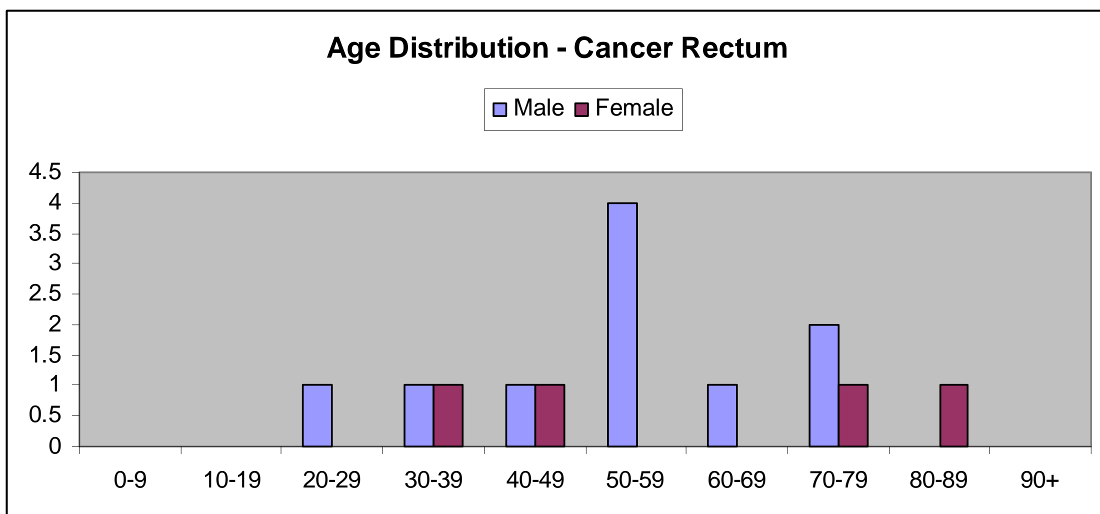
Colon:

	Male	Female
Cases	11	12
%	6.3	7.8
Median Age	45	65
Crude Rate	4.02	4.45
ASR (World)	7.26	8.74
Cumulative Risk	0.63	1.18

Rectum:

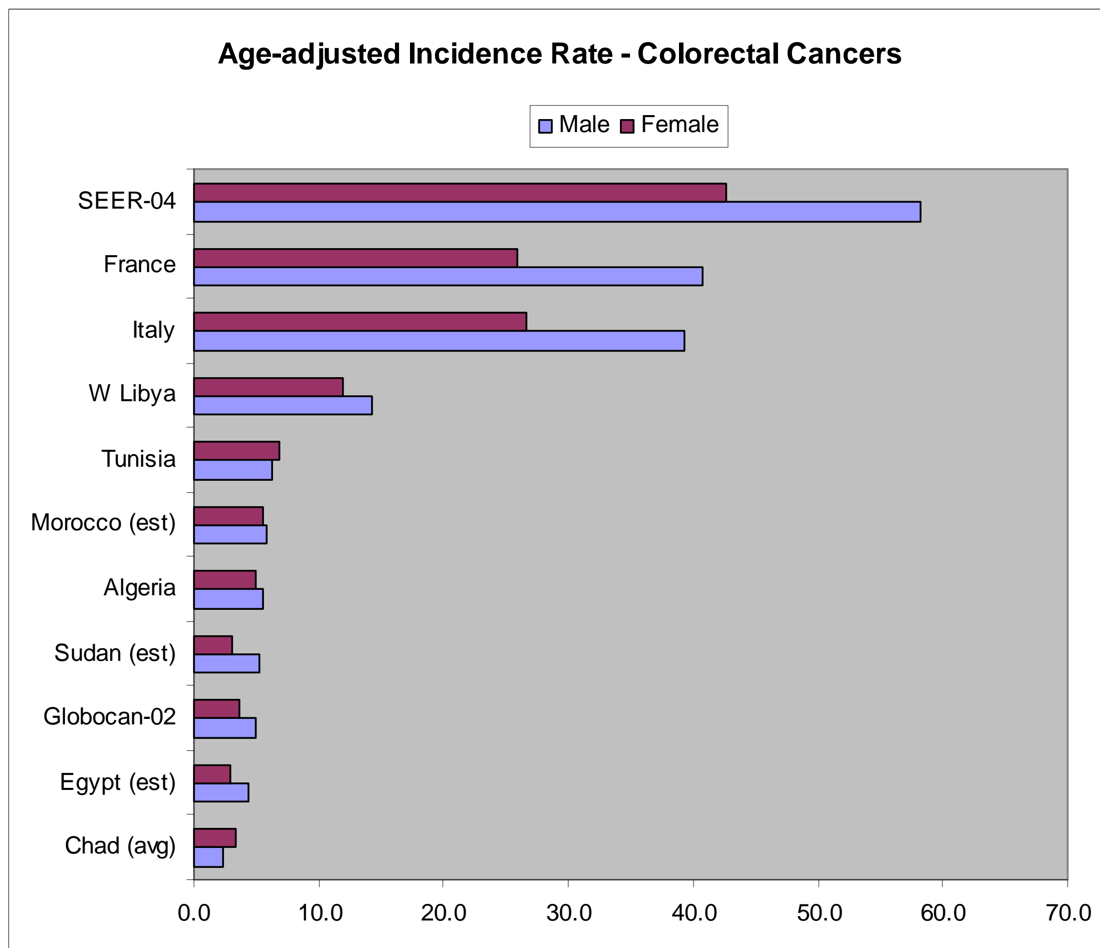
	Male	Female
Cases	10	4
%	5.7	2.6
Median Age	53	59
Crude Rate	3.66	1.48
ASR (World)	6.29	2.31
Cumulative Risk	0.70	0.28





Colorectal Cancers

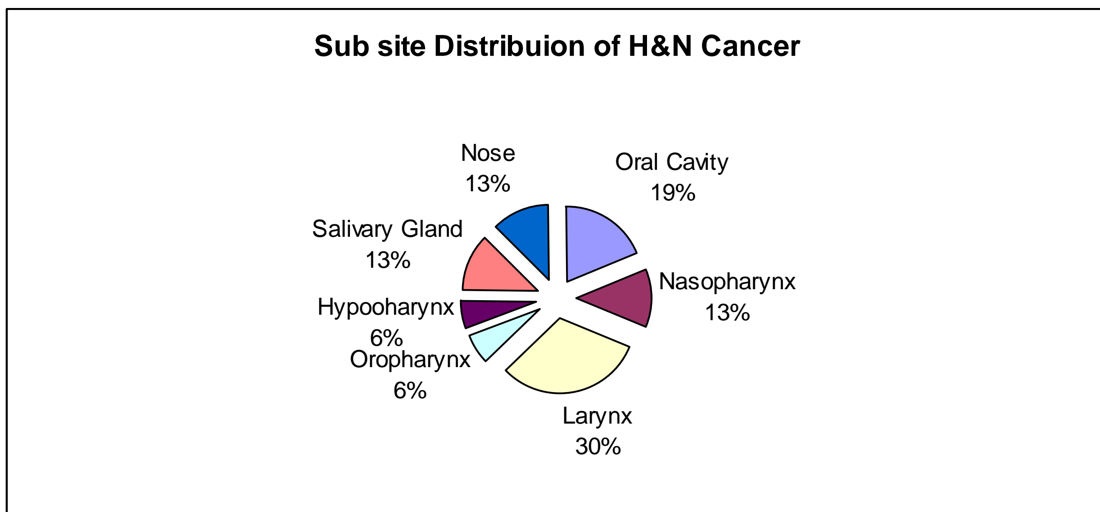
	Male	Female
Chad (avg)	2.3	3.3
Egypt (est)	4.3	2.9
Globocan-02	4.9	3.7
Sudan (est)	5.3	3.1
Algeria	5.5	5.0
Morocco (est)	5.8	5.5
Tunisia	6.3	6.9
W Libya	**14.2**	**12.0**
Italy	39.3	26.6
France	40.8	25.9
SEER-04	58.2	42.7



HEAD & NECK CANCER:
Cancer of head and neck region contributes to 5% of all cancer patients as analysed by the compiled data in western Libya. This cancer is more common in males by a male to female ration of 2:1. This may be a reflection of carcinogenic effect of smoking found with significant higher prevalence in males. The commonest involved morphologic sub site is larynx, followed by oral cavity and nasopharynx.

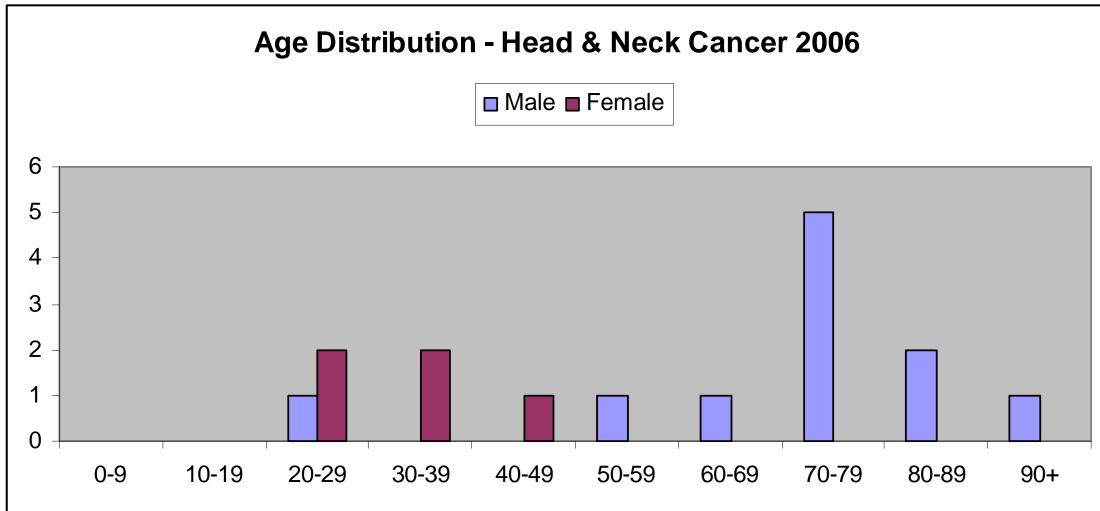
Oral Cavity	3
Nasopharynx	2
Larynx	5
Oropharynx	1
Hypopharynx	1
Salivary Gland	2
Nose	2
Total	16

Stage	Cases
I	0
II	1
III	2
IV	4
Recurrent	1
Unknown	8
Total	16

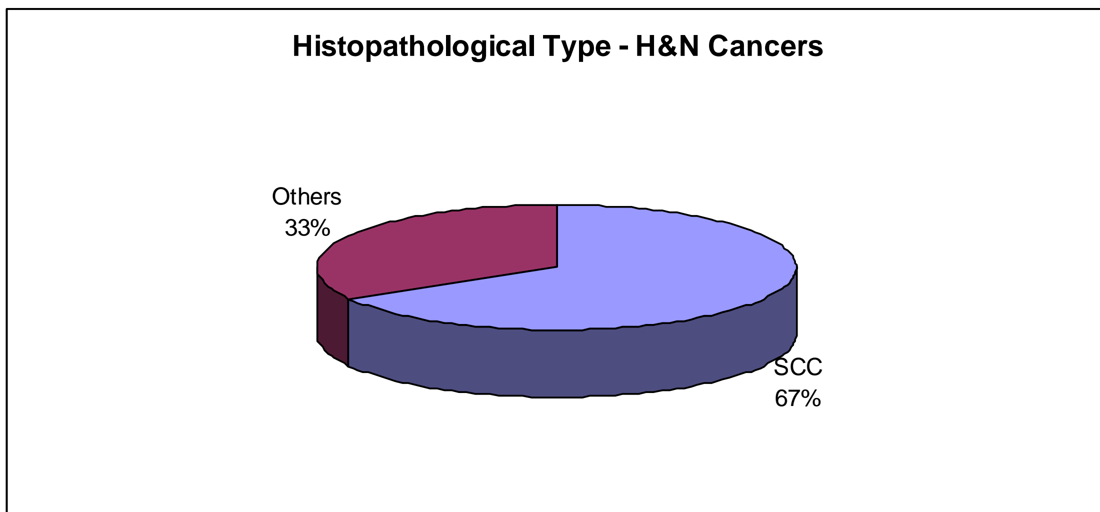


The incidence increases with increasing age and 50% of patients are more than 70 years of age. H&N cancers have good cure rates in stage I, II, III but unfortunately, at presentation, 50% of patients present in stage IV which is a largely incurable stage. This late presentation at a higher clinical stage contributes to treatment failure, a relatively

refractory disease, and higher mortality in our population. Additionally it is a reflection of sub optimal far reaching basic health care and screening, demanding monetary and human resource investment.

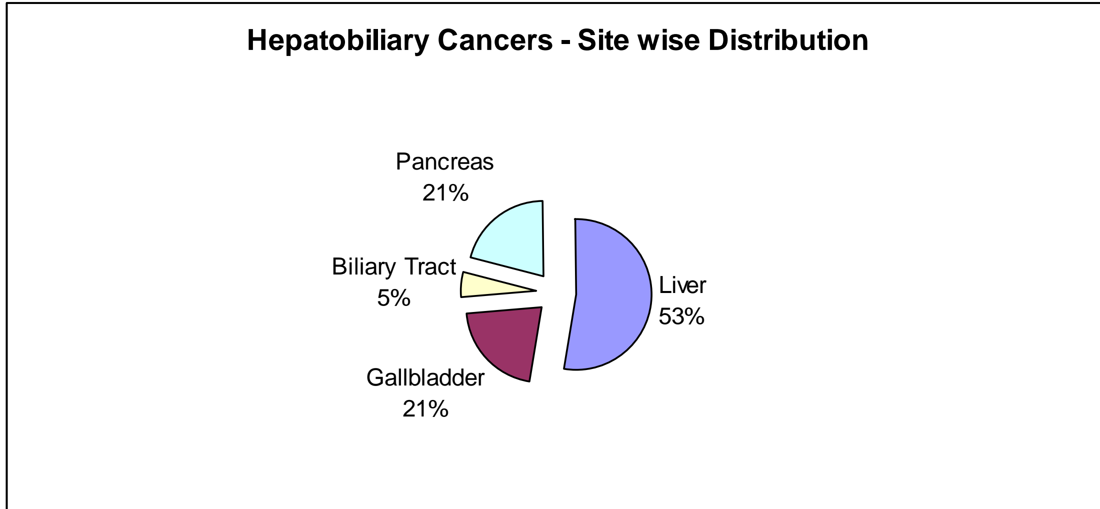


Histopathologically, majority of tumors were squamous cell carcinomas (6/9). Others included undifferentiated cancers (2/9) and lymphoepithelioma (1/9).

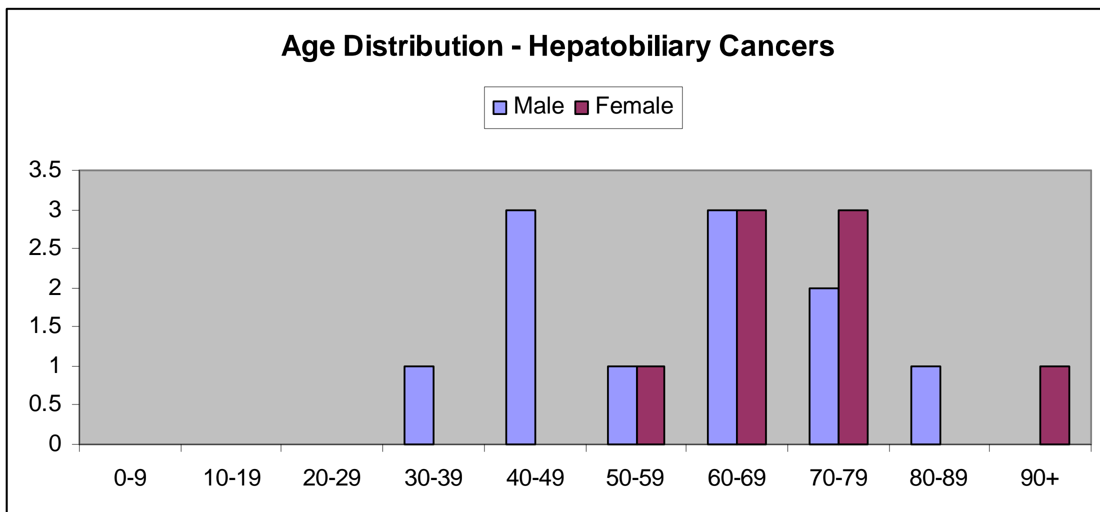


HEPATOBILIARY CANCERS:

Cancers of hepatobiliary tract contribute to 6% of all cancer patients, as evidenced by data of western Libya cancer registry. These include cancers of liver, gallbladder, biliary tract, and pancreas. Liver cancer is the commonest one among these in western Libya (53%) followed by gall bladder (21%), pancreas (21%), and biliary tract (5%).



The effective and curative treatment modality is surgery but these cancers occur in elderly population with 70% of patients more than 70 years old. This makes surgery an almost impossible treatment option due to medically unfit cases and associated co-morbidity. This ultimately influences the ultimate grave treatment outcome.

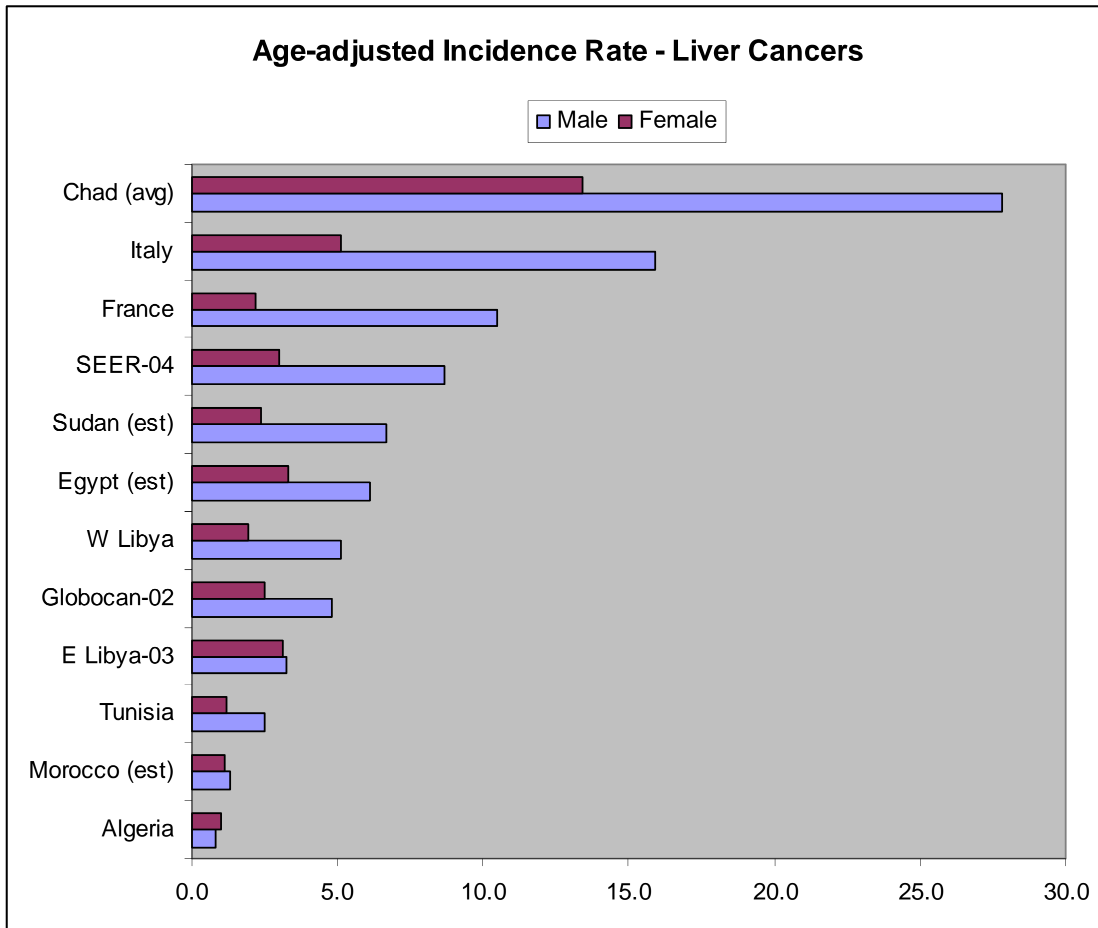


LIVER CANCER:

Liver cancers form the 8th most common cancer in western Libya. This cancer is also common is neighboring Sudan and Chad. In Chad, it is 2nd commonest cancer in male population. In our alcohol-free society, a higher prevalence of viral hepatitis might be responsible for this higher incidence rate. This cancer has a very high disease-related mortality and 60% of patients are above the age of 60 at presentation.

	Male	Female
Cases	7	3
%	4	1.95
Median Age	60	75
Crude Rate	2.56	1.11
ASR (World)	5.12	1.94
Cumulative Risk	0.57	0.88

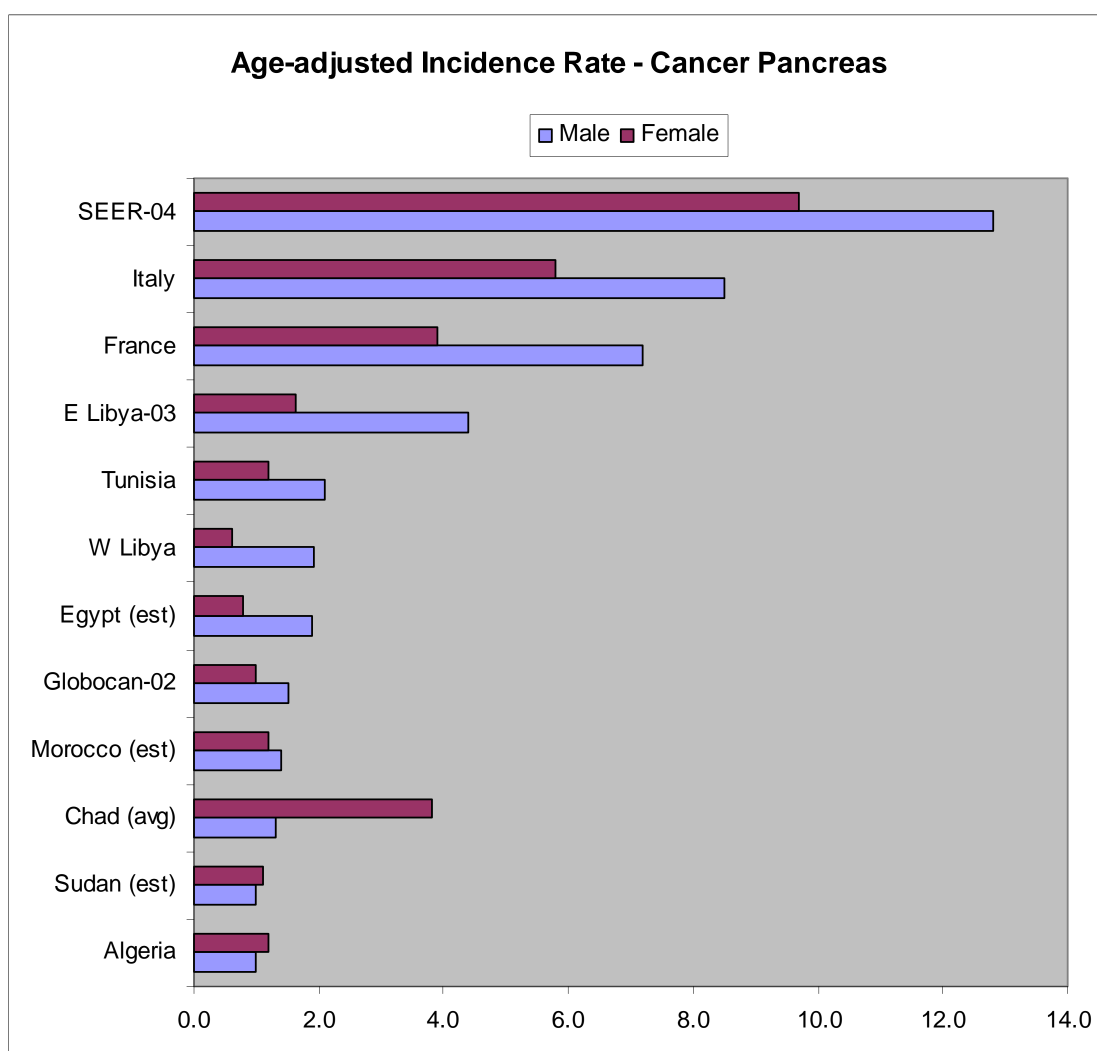
	Male	Female
Algeria	0.8	1.0
Morocco (est)	1.3	1.1
Tunisia	2.5	1.2
Globocan-02	4.8	2.5
W Libya	**5.1**	**1.9**
Egypt (est)	6.1	3.3
Sudan (est)	6.7	2.4
SEER-04	8.7	3.0
France	10.5	2.2
Italy	15.9	5.1
Chad (avg)	27.8	13.4
E Libya-03	3.3	3.1



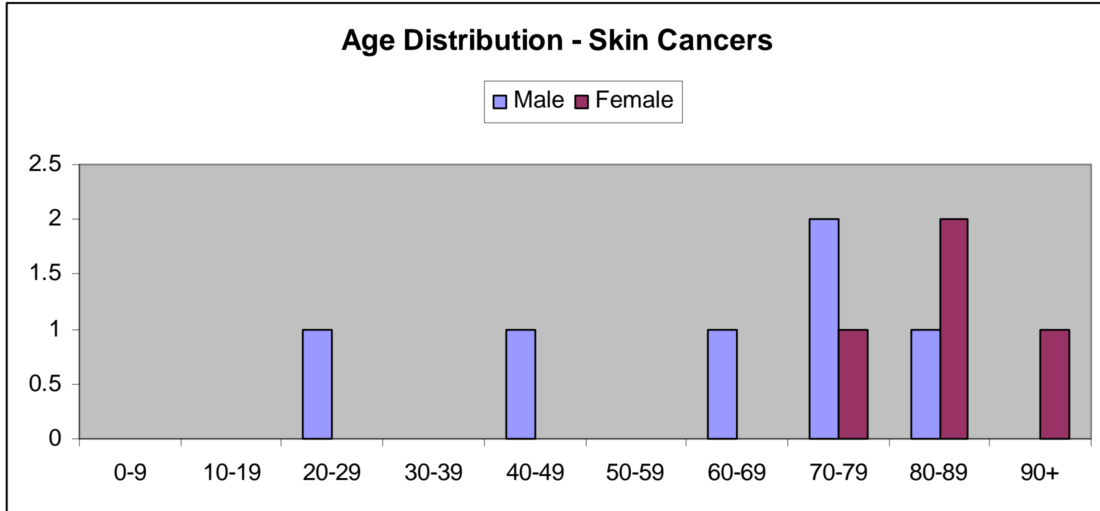
PANCREAS CANCER:

	Male	Female
Cases	3	1
%	1.7	0.6
Median Age	53	90
Crude Rate	1.10	0.37
ASR (World)	1.91	0.62
Cumulative Risk	0.23	0.00

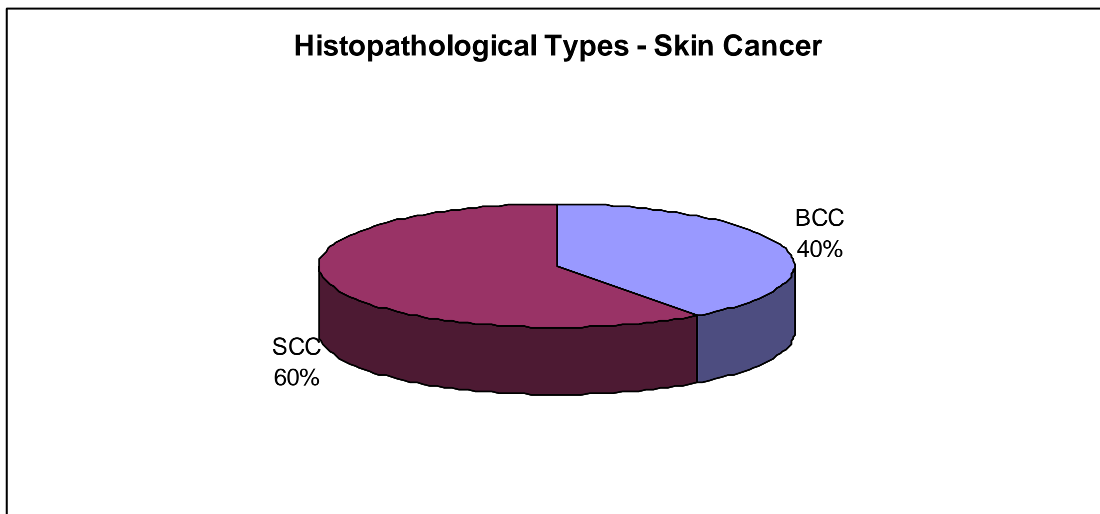
	Male	Female
Algeria	1.0	1.2
Sudan (est)	1.0	1.1
Chad (avg)	1.3	3.8
Morocco (est)	1.4	1.2
Globocan-02	1.5	1.0
Egypt (est)	1.9	0.8
W Libya	**1.9**	**0.6**
Tunisia	2.1	1.2
E Libya-03	4.4	1.6
France	7.2	3.9
Italy	8.5	5.8
SEER-04	12.8	9.7



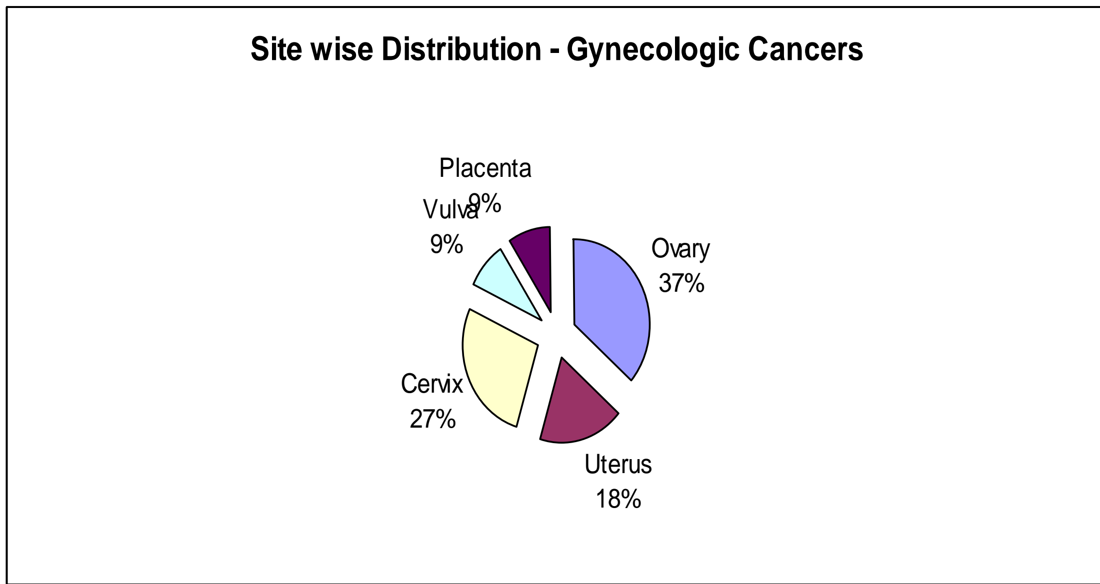
SKIN CANCER:
Skin cancers constitute about 3% of all cancers and the M:F ratio is 3:2 in favor of males. Similar to other solid tumors, skin cancer also more commonly occur in elderly population with 60% of skin cancers in patients above 60 years of age.



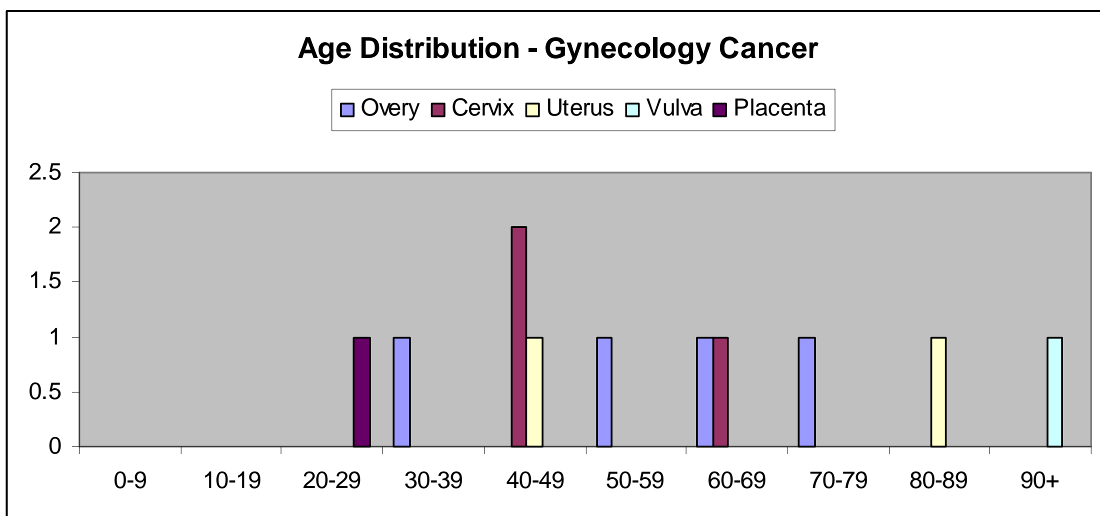
Histopathologically, squamous cell cancers (6/10) are commoner than basal cell cancers (4/10).



FEMALE GENITAL TRACT CANCERS:
These cancers include cancer ovary, fallopian tube, uterus, cervix, vagina, and vulva. Together, these sites contribute to 7% of all cancers in females. The relative distribution is shown in figure below. The highest is ovary (37%), followed by cervix (27%) and Uterus (18%).



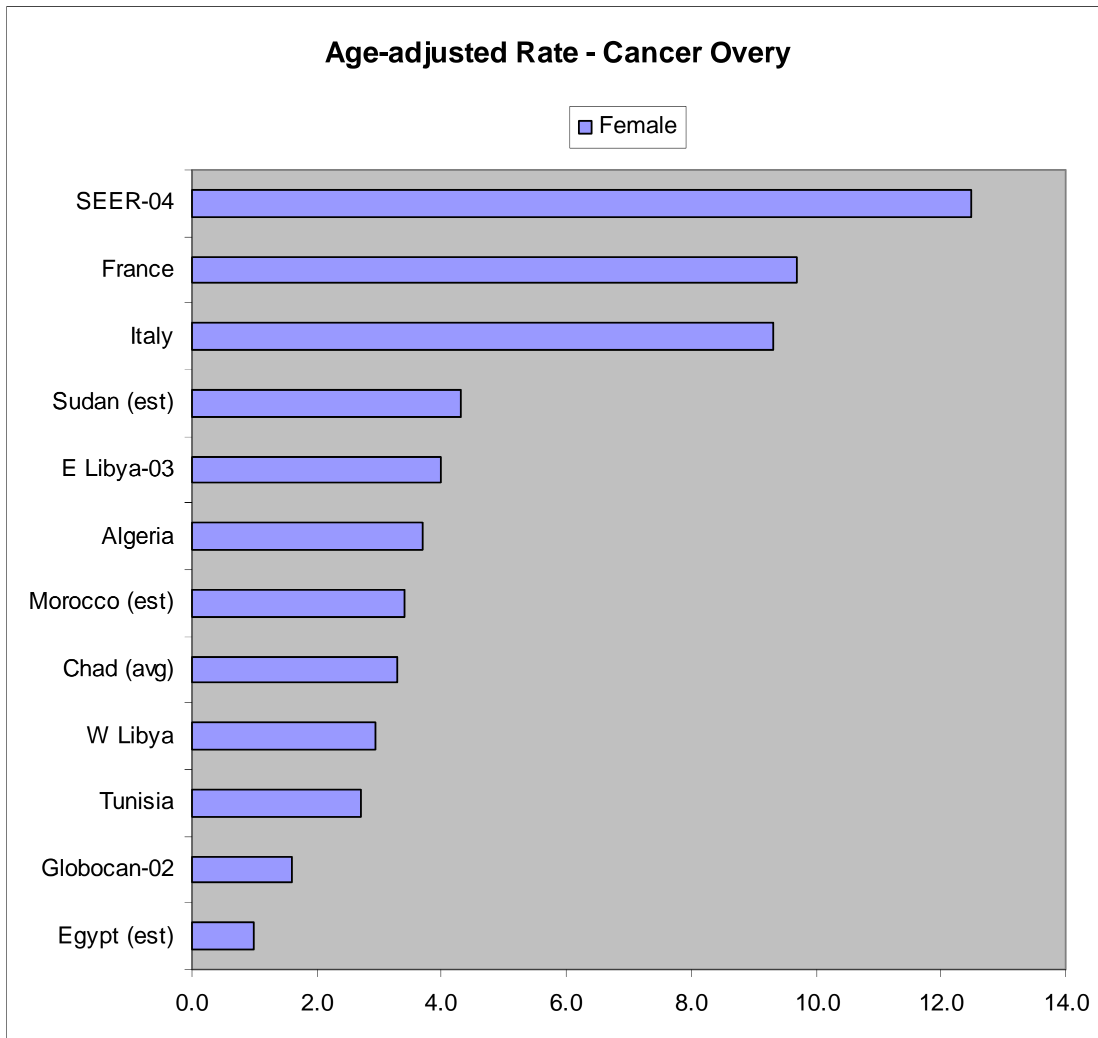
All of these cancers are predominantly seen over the age of 50 except placental tumors. Placental tumors include H mole, invasive mole, and choriocarcinoma.



CANCER OVARY:

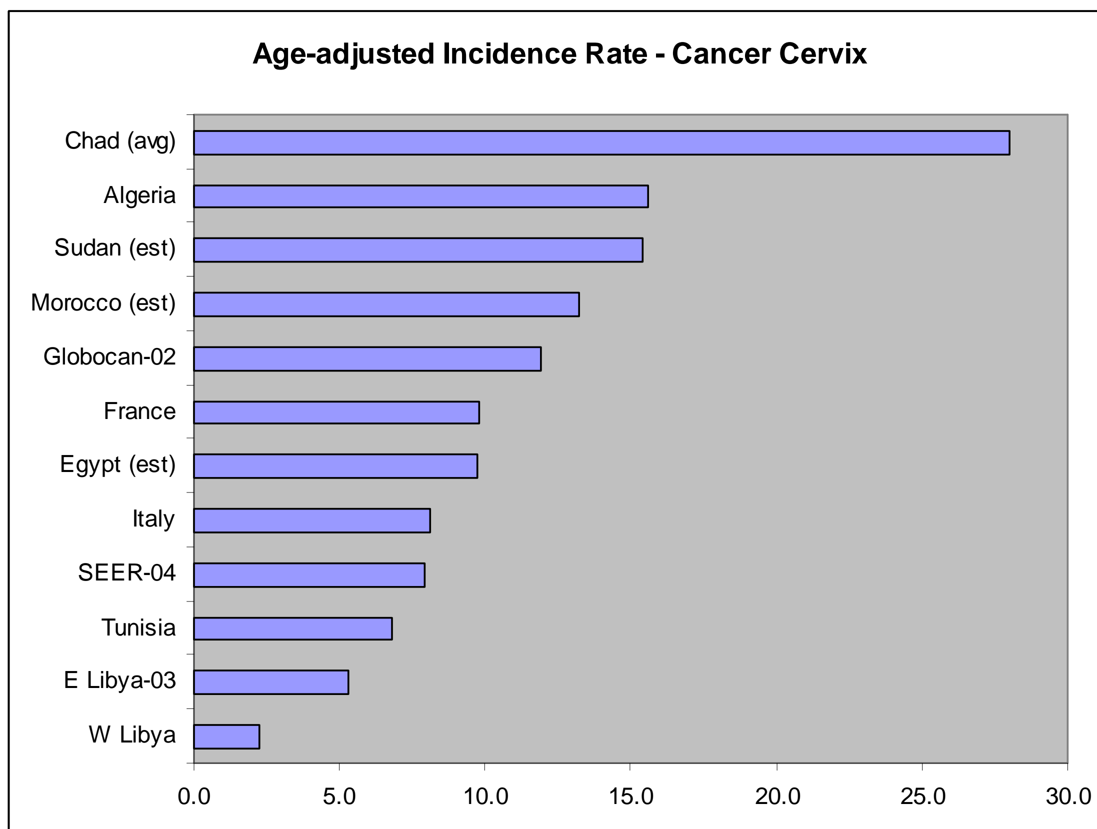
	Female
Cases	4
%	2.6
Median Age	55
Crude Rate	1.48
ASR (World)	2.95
Cumulative Risk	0.42

	Female
Egypt (est)	1.0
Globocan-02	1.6
Tunisia	2.7
W Libya	**3.0**
Chad (avg)	3.3
Morocco (est)	3.4
Algeria	3.7
E Libya-03	4.0
Sudan (est)	4.3
Italy	9.3
France	9.7
SEER-04	12.5



CANCER CERVIX UTERI:

	Female
W Libya	**2.2**
E Libya-03	5.3
Tunisia	6.8
SEER-04	7.9
Italy	8.1
Egypt (est)	9.7
France	9.8
Globocan-02	11.9
Morocco (est)	13.2
Sudan (est)	15.4
Algeria	15.6
Chad (avg)	28.0

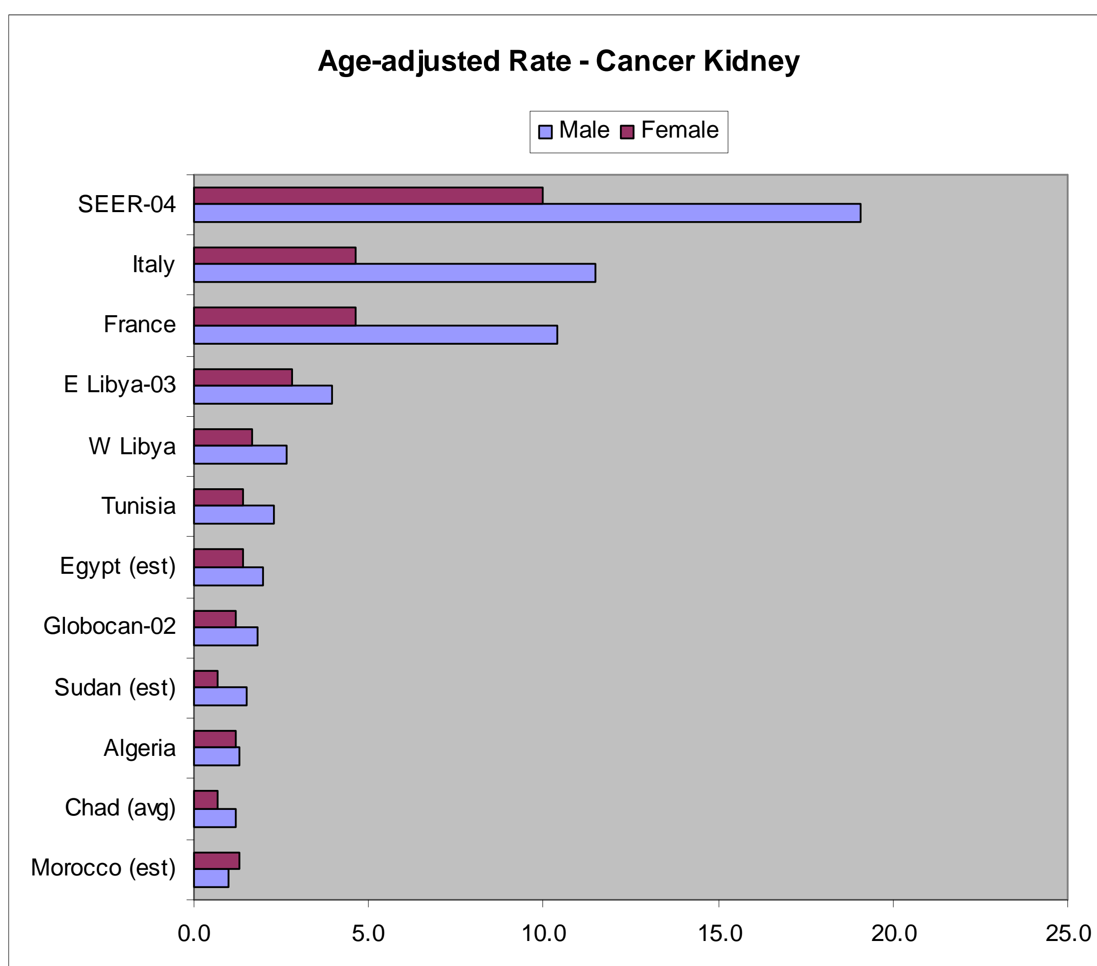


UROTHELIAL TRACT CANCERS:
Urothelial cancers include cancer of kidney, ureter, urinary bladder, and prostate. Out of these, the most common is cancer prostate.

Cancer of kidney (including cancers of renal pelvis) comprises 2% of all cancer patients. The incidence is remarkably less as compared to US and European rates.

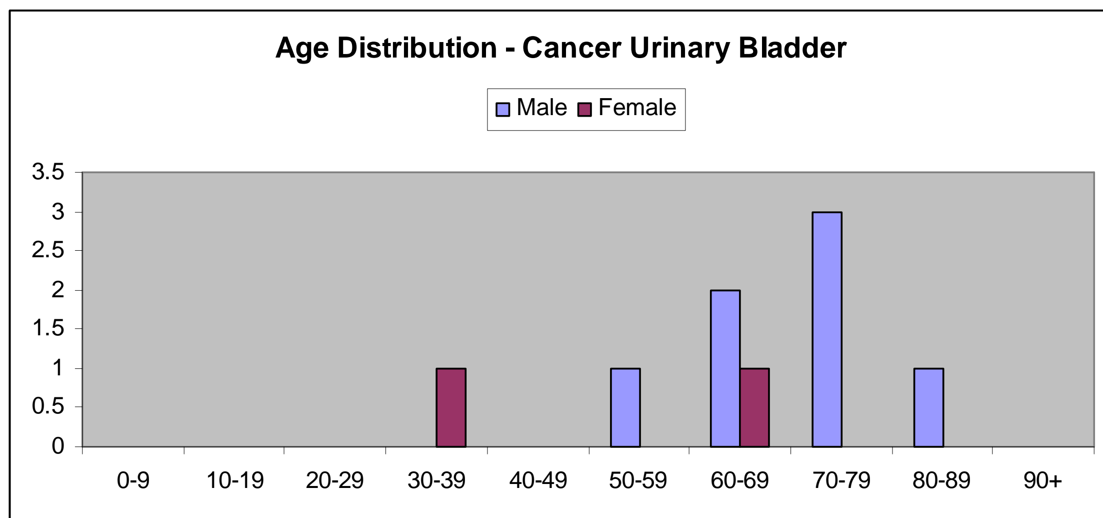
	Male	Female
Cases	4	3
%	2.3	1.9
Median Age	69	55
Crude Rate	1.46	1.11
ASR (World)	2.64	1.66
Cumulative Risk	0.37	0.11

	Male	Female
Morocco (est)	1.0	1.3
Chad (avg)	1.2	0.7
Algeria	1.3	1.2
Sudan (est)	1.5	0.7
Globocan-02	1.8	1.2
Egypt (est)	2.0	1.4
Tunisia	2.3	1.4
W Libya	**2.6**	**1.7**
E Libya-03	3.9	2.8
France	10.4	4.6
Italy	11.5	4.6
SEER-04	19.1	10.0



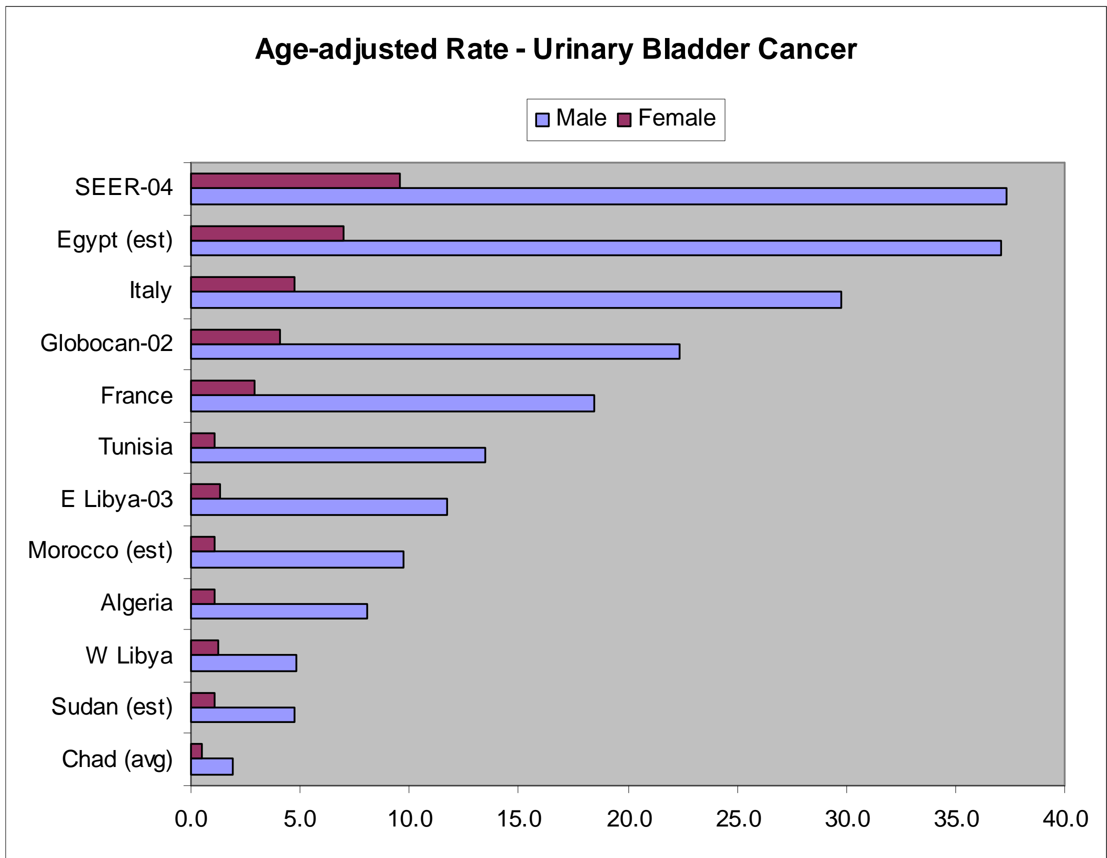
Cancer of urinary bladder contributes to less than 3% of cases. It is more common in males by ratio 7:2. The median age at presentation is 68 years. In male population, the incidence closely matches to that reported from Europe but it is less common in Libyan females.

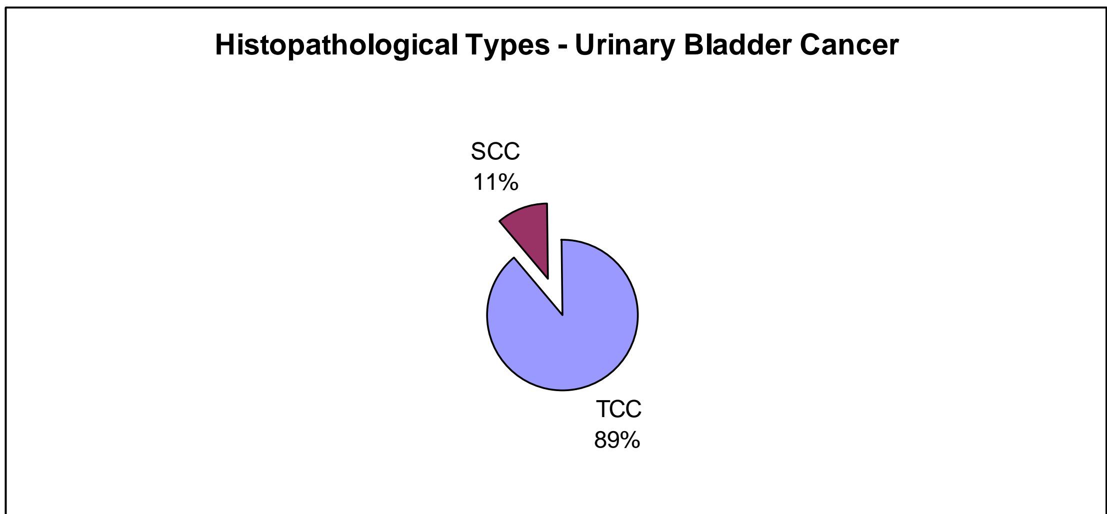
Histopathologically, transitional cell carcinoma (8/9) is more common than squamous cell carcinoma (1/9).



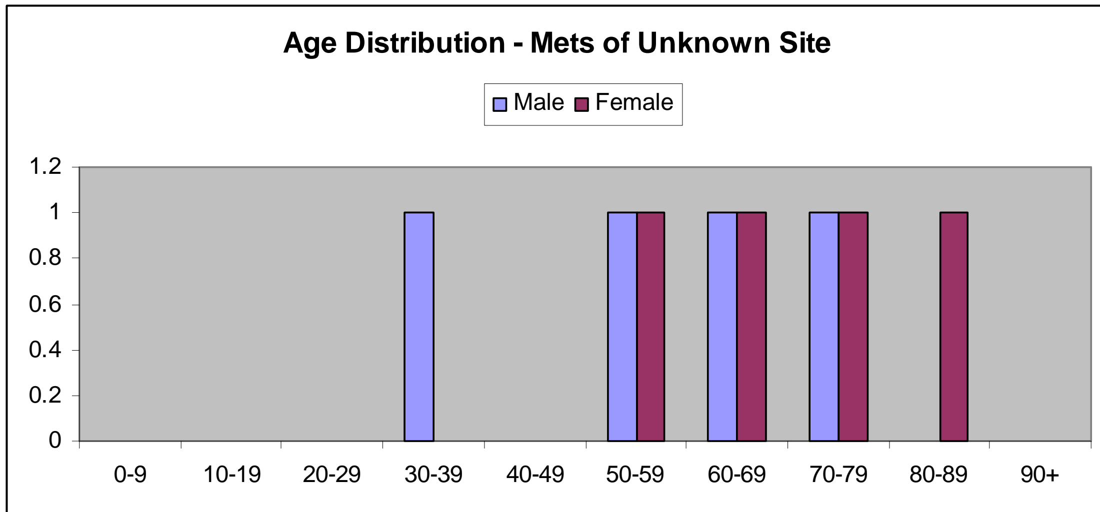
	Male	Female
Cases	7	2
%	4	1.3
Median Age	69	55
Crude Rate	2.56	0.74
ASR (World)	4.78	1.21
Cumulative Risk	0.66	0.13

	Male	Female
Chad (avg)	1.9	0.5
Sudan (est)	4.7	1.1
W Libya	**4.8**	**1.2**
Algeria	8.1	1.1
Morocco (est)	9.7	1.1
E Libya-03	11.7	1.3
Tunisia	13.5	1.1
France	18.5	2.9
Globocan-02	22.4	4.1
Italy	29.8	4.7
Egypt (est)	37.1	7.0
SEER-04	37.3	9.6

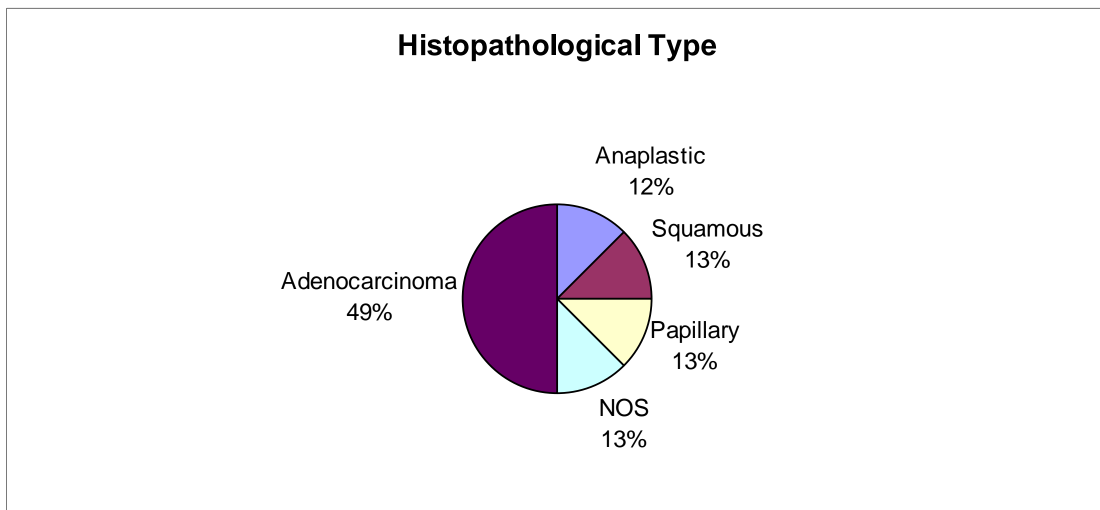

Age-adjusted Rate - Urinary Bladder Cancer
Male
Female
SEER-04
Egypt (est)
Italy
Globocan-02
France
Tunisia
E Libya-03
Morocco (est)
Algeria
W Libya
Sudan (est)
Chad (avg)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0


Histopathological Types - Urinary Bladder Cancer
SCC
11%
TCC
89%

METASTASES FROM UNKNOWN PRIMARY SITE:
This category includes tumors whose primary site could not be identified even after complete metastatic workup for suspected primary site. In head and neck region, these tumors form about 10% of all diagnosed cases. In western Libya, they contribute to about 3.5% of all cancer cases reported. The M:F ratio is 1:1 and the median age at presentation is 63 years.

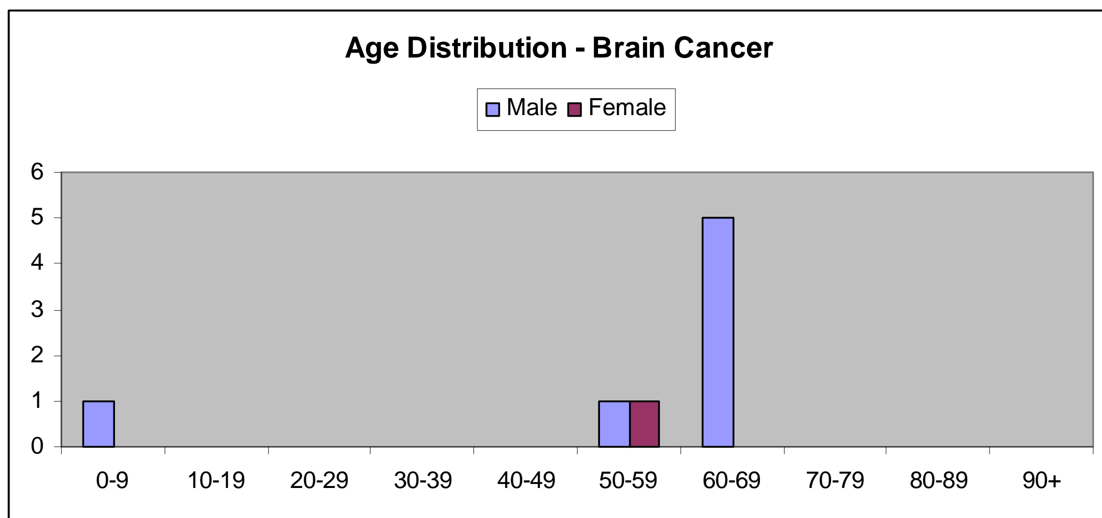


Histopathologically, majority of these cancers are adenocarcinomas (4/8). Due to metastatic nature of disease at presentation, about 85% (7/8) of patients were considered for palliative and supportive care only with no role for a definite active or curative management due to multitude of reasons.



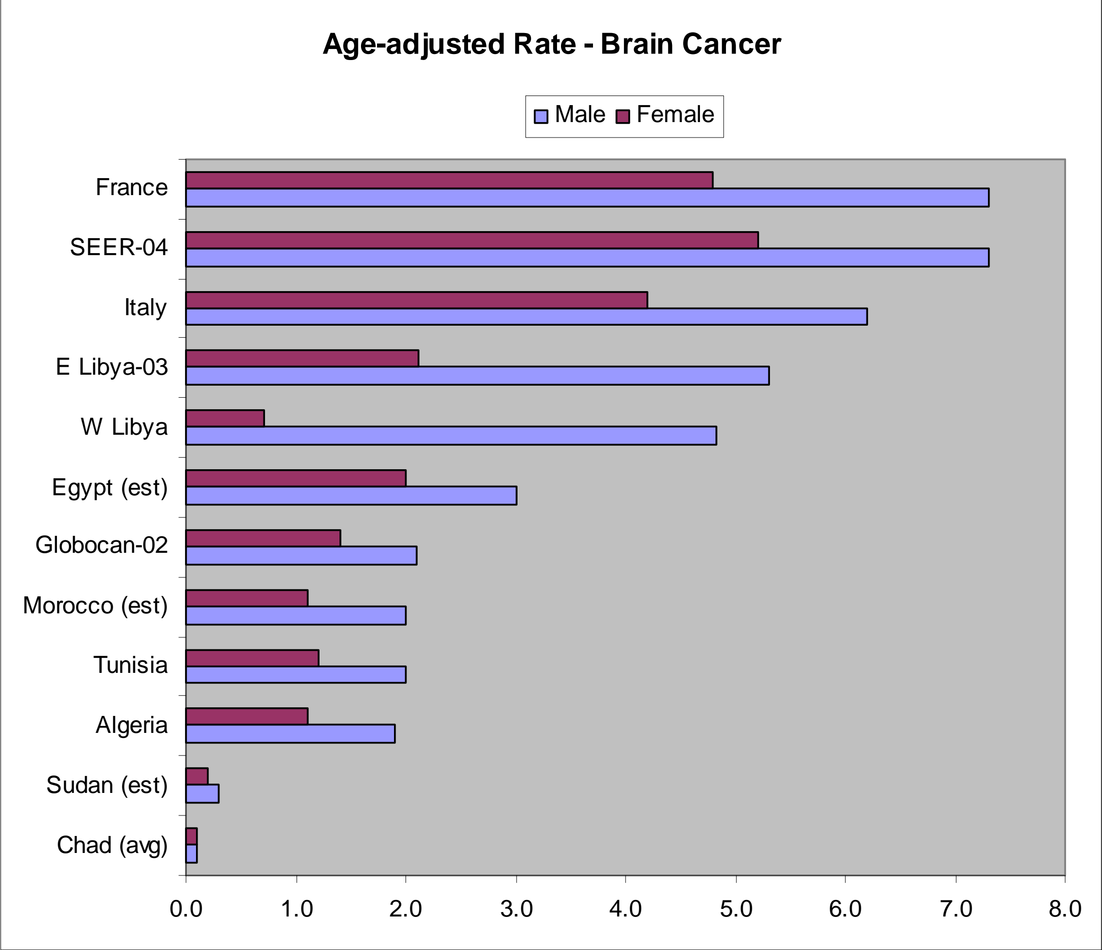
BRAIN CANCER:
A total of eight patients with brain cancers (excluding meningeal and spinal cancers) were registered in 2006 with M:F ratio of 7:1. The median age at presentation was 61 years.

Histopathologically, one-fourth of brain cancers were glioblastomas (2/8) which is the most aggressive and anaplastic type of brain tumor.



	Male	Female
Cases	7	1
%	4	0.6
Median Age	62	55
Crude Rate	2.56	0.37
ASR (World)	4.82	0.71
Cumulative Risk	0.59	0.09

	Male	Female
Chad (avg)	0.1	0.1
Sudan (est)	0.3	0.2
Algeria	1.9	1.1
Tunisia	2.0	1.2
Morocco (est)	2.0	1.1
Globocan-02	2.1	1.4
Egypt (est)	3.0	2.0
W Libya	**4.8**	**0.7**
E Libya-03	5.3	2.1
Italy	6.2	4.2
SEER-04	7.3	5.2
France	7.3	4.8

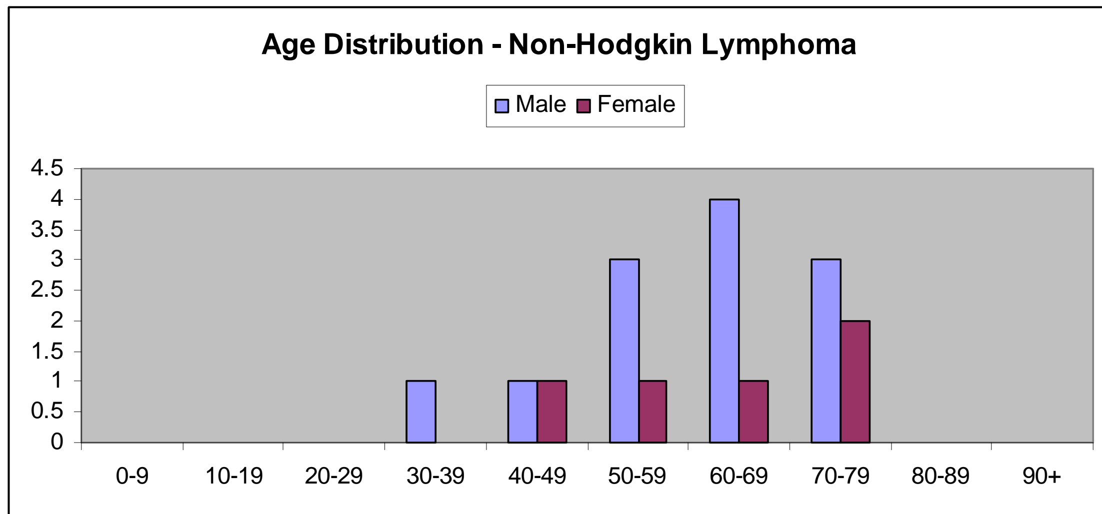


Age-adjusted Rate - Brain Cancer
Male
Female
France
SEER-04
Italy
E Libya-03
W Libya
Egypt (est)
Globocan-02
Morocco (est)
Tunisia
Algeria
Sudan (est)
Chad (avg)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0

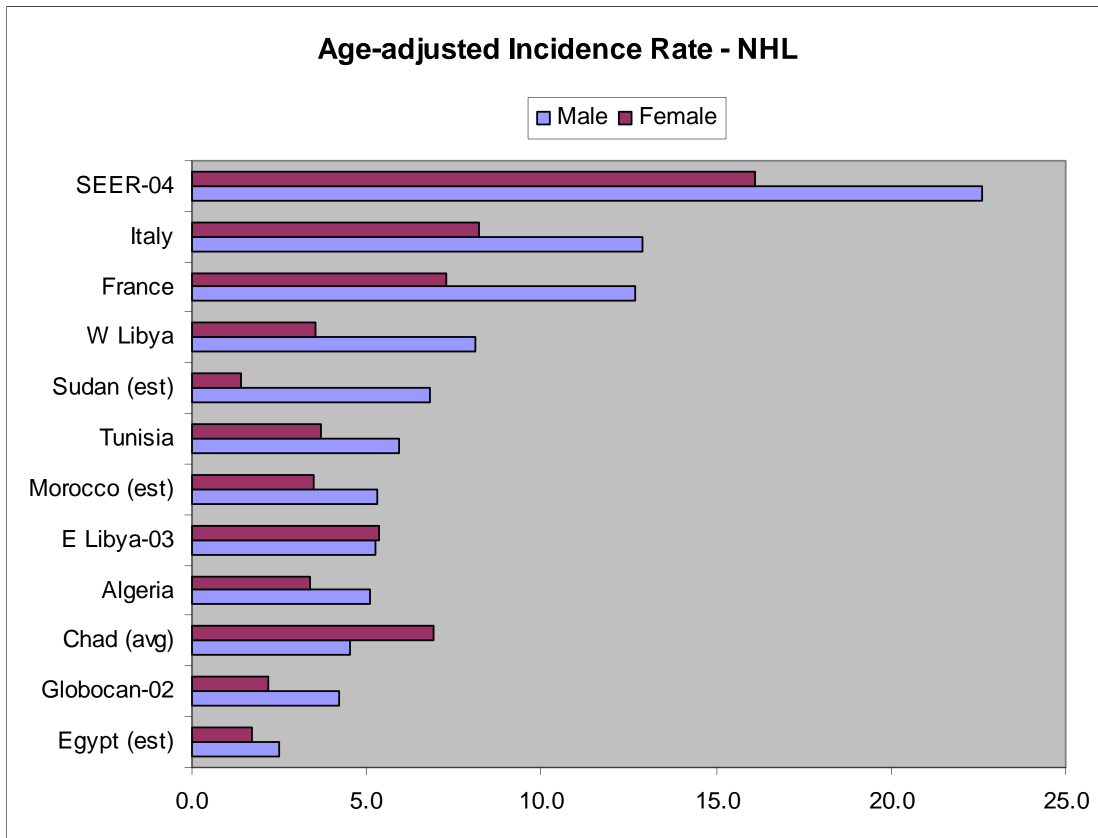
LYMPHOMAS:
Hodgkin's and non-Hodgkin's lymphomas together form 4th commonest malignancy and constitute about 8% of all cancers reported from western Libya. Non-Hodgkin's lymphomas are more common with a ratio of 2:1.

Non-Hodgkin's lymphomas are more common in males (2.4:1) and the median age at presentation is 64 years. The age distribution is shown in figure below.

	Male	Female
Cases	12	5
%	6.8	3.2
Median Age	62	65
Crude Rate	4.4	1.8
ASR (World)	8.1	5.5
Cumulative Risk	0.93	0.45

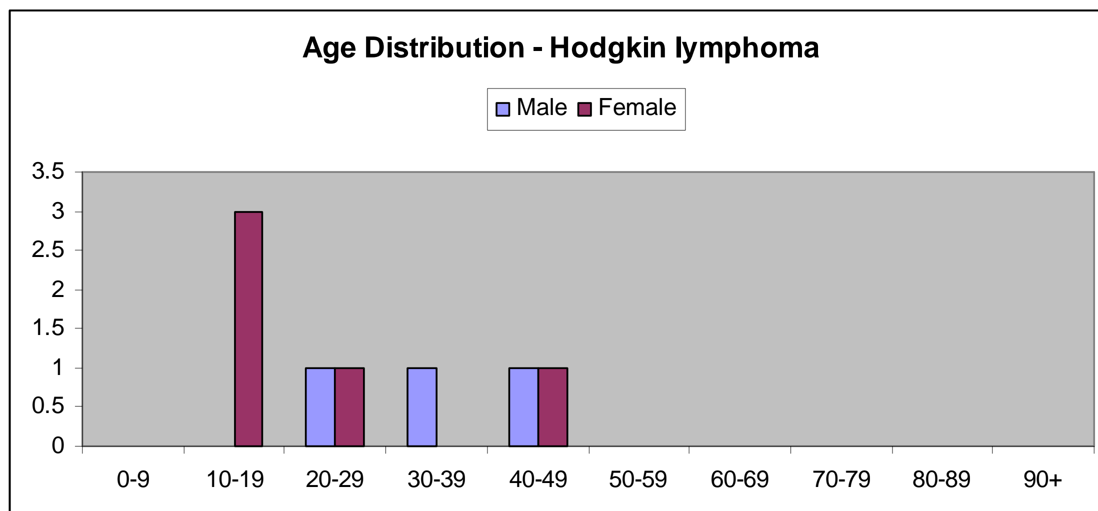


	Male	Female
Egypt (est)	2.5	1.7
Globocan-02	4.2	2.2
Chad (avg)	4.5	6.9
Algeria	5.1	3.4
E Libya-03	5.3	5.4
Morocco (est)	5.3	3.5
Tunisia	5.9	3.7
Sudan (est)	6.8	1.4
W Libya	**8.1**	**3.5**
France	12.7	7.3
Italy	12.9	8.2
SEER-04	22.6	16.1

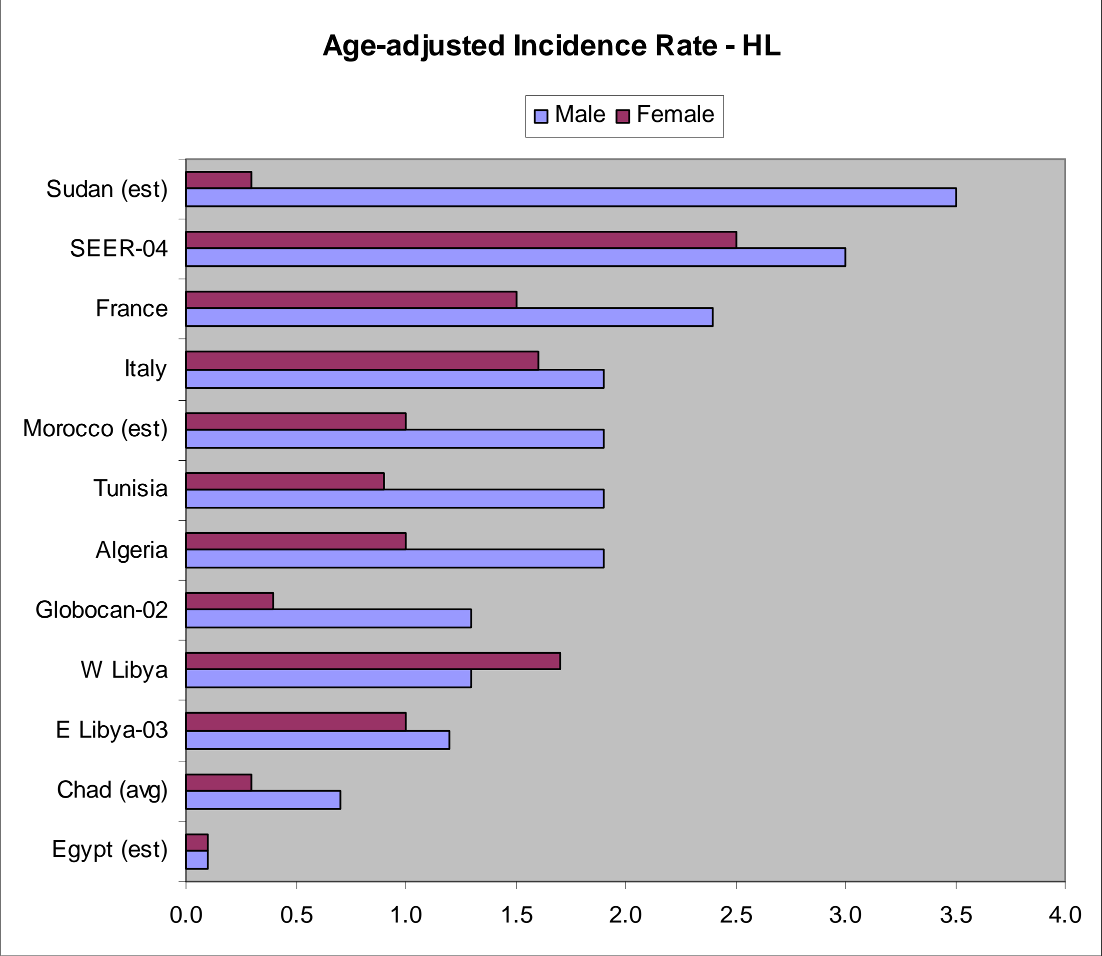


Hodgkin's lymphoma is more common in females (1.66:1) and the median age at presentation is lesser at 23 years as compared to non-Hodgkin's lymphoma.

	Male	Female
Cases	3	5
%	1.7	3.2
Median Age	42	17
Crude Rate	1.1	1.86
ASR (World)	1.33	1.74
Cumulative Risk	0.11	0.12

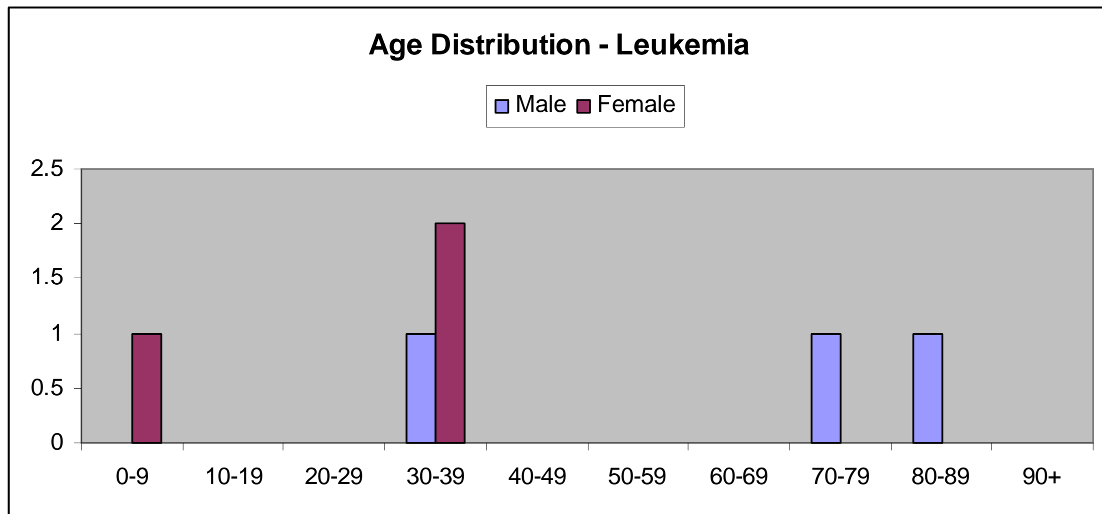


	Male	Female
Egypt (est)	0.1	0.1
Chad (avg)	0.7	0.3
E Libya-03	1.2	1.0
W Libya	**1.3**	**1.7**
Globocan-02	1.3	0.4
Algeria	1.9	1.0
Tunisia	1.9	0.9
Morocco (est)	1.9	1.0
Italy	1.9	1.6
France	2.4	1.5
SEER-04	3.0	2.5
Sudan (est)	3.5	0.3


Age-adjusted Incidence Rate - HL
Male
Female
Sudan (est)
SEER-04
France
Italy
Morocco (est)
Tunisia
Algeria
Globocan-02
W Libya
E Libya-03
Chad (avg)
Egypt (est)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

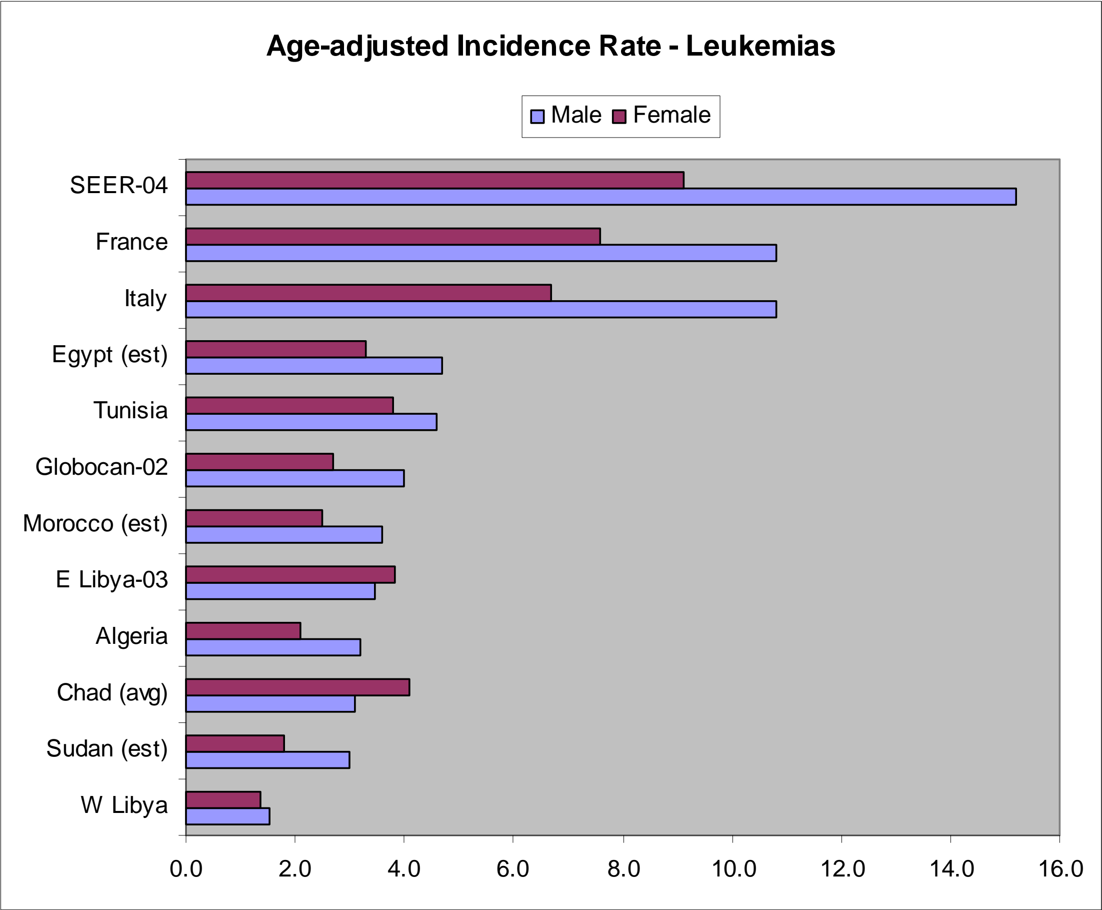
LEUKEMIAS:

Only one patient with lymphoid leukemia was registered in 2006 while 5 patients with myeloid leukemia were registered, making myeloid leukemia more common with ratio of 5:1. Figures reported from Eastern Libya also indicate predominance of myeloid leukemia making it more prevalent myeloproliferative disorder in Libya. The median age at diagnosis for myeloid leukemia is 39 years.



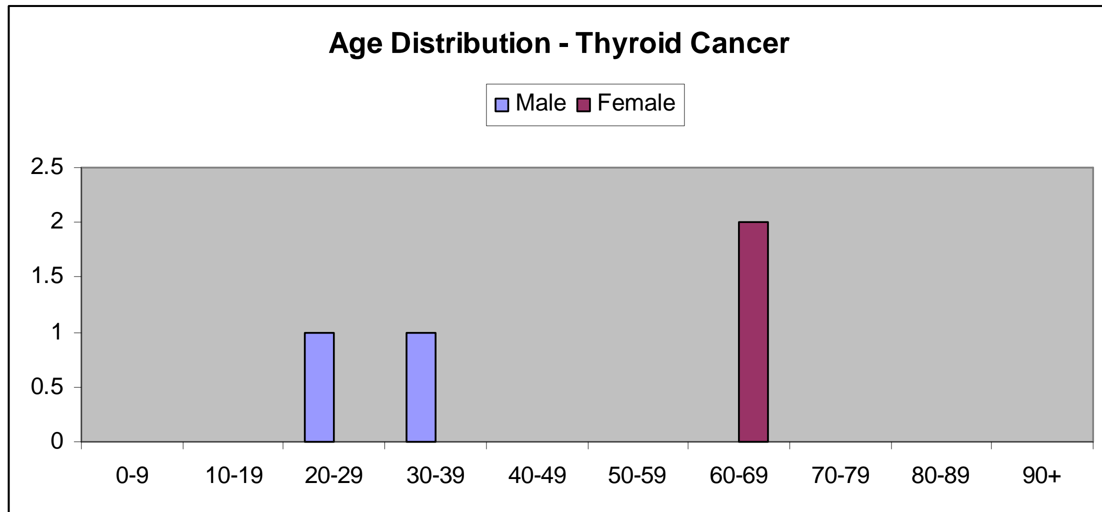
	Male	Female
Cases	3	3
%	1.7	1.9
Median Age	72	37
Crude Rate	1.1	1.1
ASR (World)	1.53	1.35
Cumulative Risk	0.21	0.09

	Male	Female
W Libya	**1.5**	**1.4**
Sudan (est)	3.0	1.8
Chad (avg)	3.1	4.1
Algeria	3.2	2.1
E Libya-03	3.5	3.8
Morocco (est)	3.6	2.5
Globocan-02	4.0	2.7
Tunisia	4.6	3.8
Italy	10.8	6.7
France	10.8	7.6
SEER-04	15.2	9.1
Egypt (est)	4.7	3.3


Age-adjusted Incidence Rate - Leukemias
Male
Female
SEER-04
France
Italy
Egypt (est)
Tunisia
Globocan-02
Morocco (est)
E Libya-03
Algeria
Chad (avg)
Sudan (est)
W Libya
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

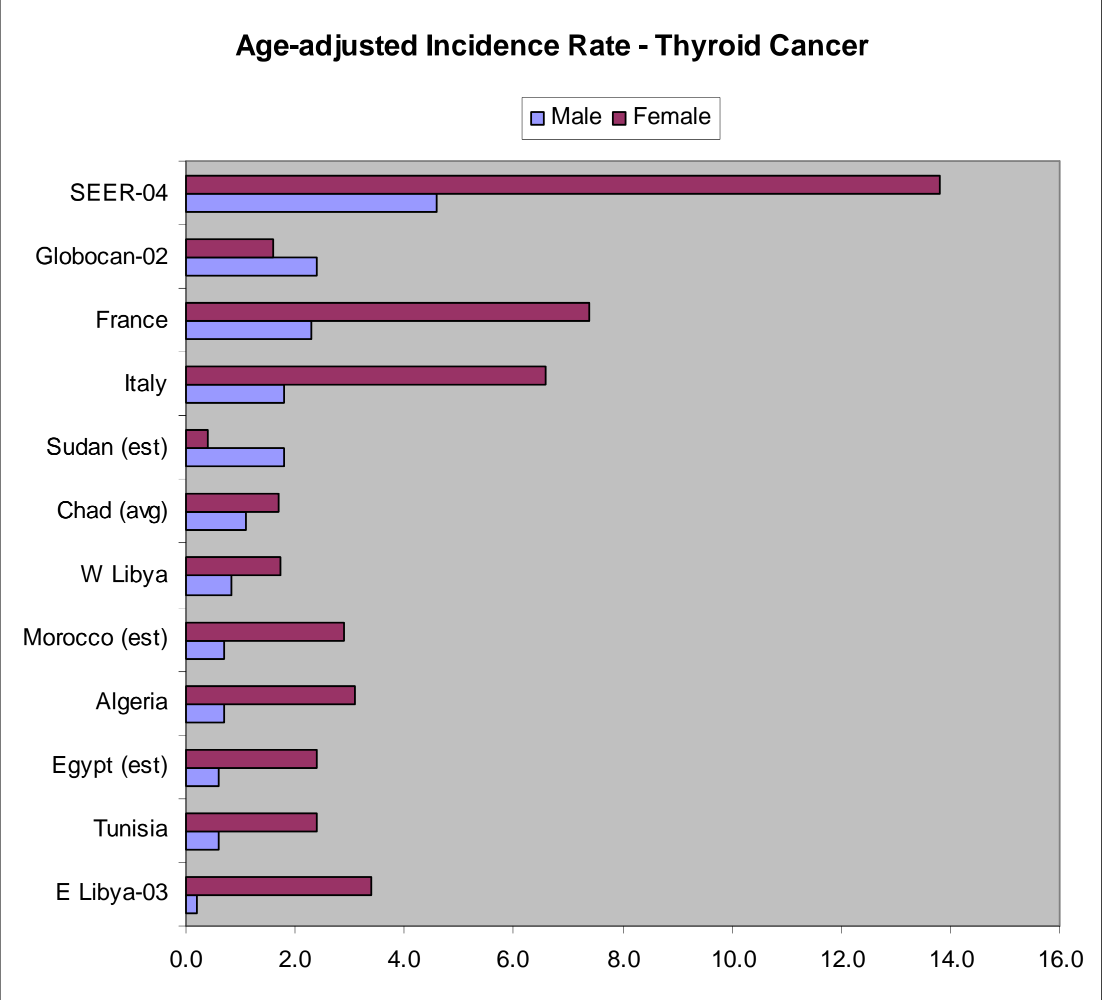
THYROID CANCERS:

Thyroid cancers constitute 1.2% of all cancers reported from collective data from western Libya. M:F ratio is 1:1 and the median age at presentation is 48 years. Histopathologically, majority of cancers were papillary carcinoma.



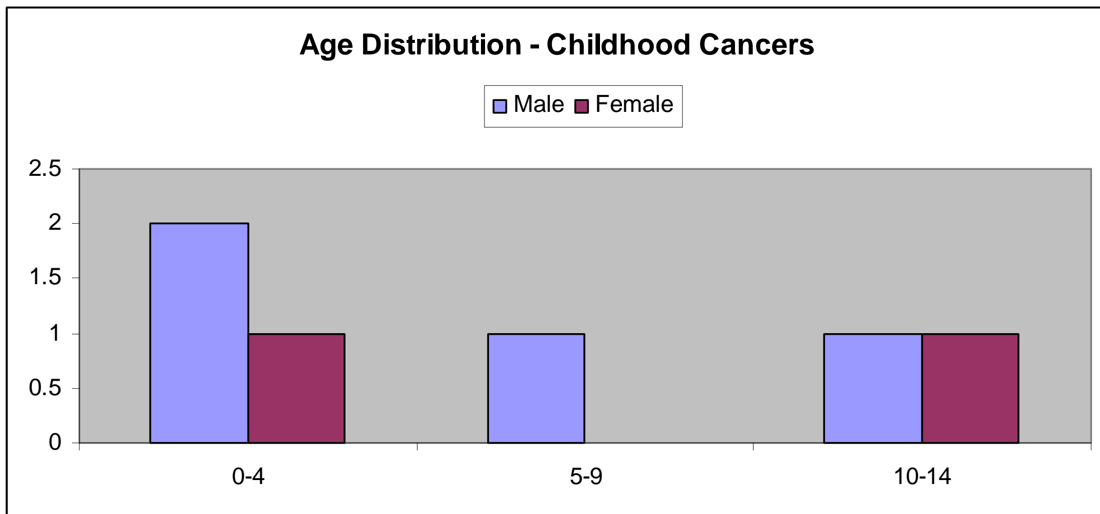
	Male	Female
Cases	7	1
%	4	0.6
Median Age	62	55
Crude Rate	2.56	0.37
ASR (World)	4.82	0.71
Cumulative Risk	0.59	0.09

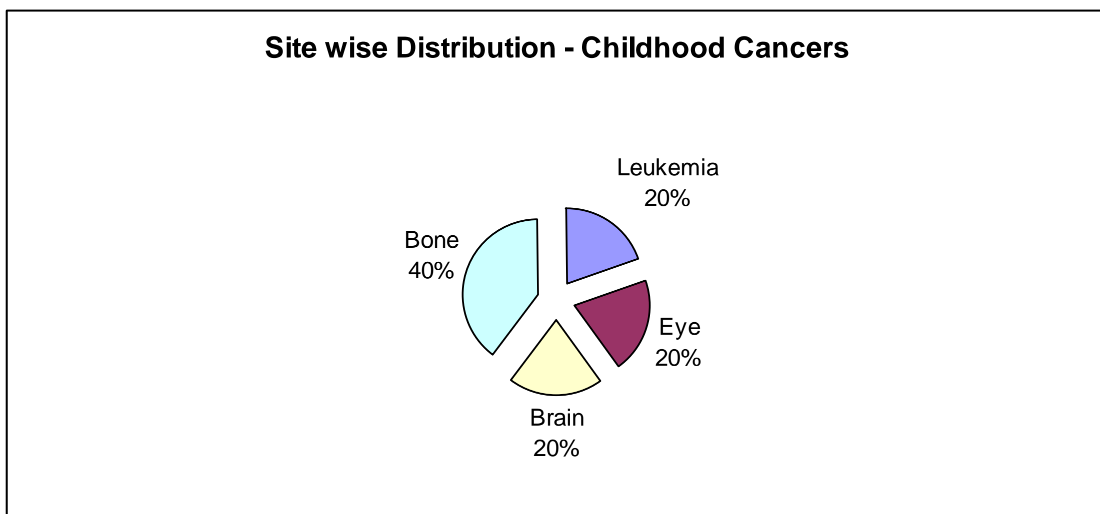
	Male	Female
E Libya-03	0.2	3.4
Tunisia	0.6	2.4
Egypt (est)	0.6	2.4
Algeria	0.7	3.1
Morocco (est)	0.7	2.9
W Libya	**0.8**	**1.7**
Chad (avg)	1.1	1.7
Sudan (est)	1.8	0.4
Italy	1.8	6.6
France	2.3	7.4
Globocan-02	2.4	1.6
SEER-04	4.6	13.8


Age-adjusted Incidence Rate - Thyroid Cancer
Male
Female
SEER-04
Globocan-02
France
Italy
Sudan (est)
Chad (avg)
W Libya
Morocco (est)
Algeria
Egypt (est)
Tunisia
E Libya-03
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

CHILDHOOD CANCERS:

This category includes cancer patients less than 15 years old. Three males (1.7%) and two females (1.3%) were registered with bone tumors being reported in two patients. The relative site wise distribution and age group distribution are shown below. There can be a selection bias as most of the childhood cases are drained out to Tripoli with the only pediatric oncology unit being located there.





Chapter 5

TABLES

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