

Incidence of Various Types of Cancer in Eastern Part of Libya

Salwa Muftah Eljamay^{1*}, Hamed Asrafel², Moataz Elsalhen Elfakakhri³, Esam Fouzi Layyas⁴, Abdul Qadir Ahmed Alhusani⁵

¹ Assistance Professor at Public Health Department, College of Medical Technology, Derna, Libya

² Lecturer in Department of Lab Medicine, College of Medical Technology, Derna, Libya

^{3,4,5} Department of lab Medicine College of Medical Technology, Derna, Libya

*Corresponding author: salwaeljamay@gmail.com

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Abstract: The observe the sample of most cancers prevalence and decide the prevalence fees in Libya (2018 -2019), Methods: The study was a retrospective analysis conducted among individuals who were diagnosed and/or treated for various types of cancer in the east region of Libya, using medical and pathological data class of most cancers prognosis turned into made in step with the International Classification of Disease. Collected (779 subjects) retrospectively and analyzed information on most cancer occurrences acquired over a 2-yr observation length from January 1st, 2018 to April 31st, 2019 from the Benghazi and Tobruk Cancer Registries. Results: The maximum not unusual place malignancies in guys have been Lung cancers (17.7%, n = 44), prostate cancers (16.5%, n = 41), Rectum cancers (13.3%, n = 33), with inside the women, the maximum not unusual place malignancies have been, Breast cancers (71.1%, n = 377), Uterus cancers (5.3%, n = 28), Rectum cancers (4.9%, n =26), the one of a kind towns and cities in Eastern a part of Libya have been as compared for any variation. In Benghazi City, the specific changes determined a remarkably excessive occurrence of most cancers. The one-of-a-kind findings have been mentioned and comparisons have been made beyond literature. The occurrence fees inside the Eastern vicinity confirmed variations from formerly stated values. The importance of this observation is that it establishes a baseline of most cancer occurrences which ought to any destiny countrywide most cancers plan in Libya. Conclusion: Proper surveillance applications want to be in the vicinity and healthcare coverage ought to be adjusted to recollect the different generic and urgent cancers in society.

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Introduction

Cancer has come to be a prime supply of morbidity and mortality globally [1] in 2008, there have been 12.7 million new instances and 7.6 million cancer-associated deaths.[2]. Most, 56% of those newly pronounced most cancers instances passed off in growing international locations and it's far projected that through 2030, 70% of all new instances of most cancers might be discovered in growing international locations [3]. Most of this boom

in prevalence is the end result of populace boom and accelerated existence expectancy [4]. Libya became absolutely missing prevalence prices on the countrywide degree till the outcomes given with inside the present-day record have been obtained. Available data have been proportions derived from unmarried or multicenter health facility registries that could not be used for the calculation of prevalence prices [5]. [6] Gift the primary records accumulated and analyzed through the Benghazi Cancer Registry. There have been posted prevalence prices from most cancer registries in Jap and western Libya [7, 8]. The prevalence of sure cancers is diverging among specific populations and geographic locations. These variations can also additionally be companions with environmental, ethnic, and/or genetic causes [9]. There can be full-size discrepancies among growing and evolved international locations, thinking about the epidemiology of most cancer diseases. Conversely, the in-development speedy industrialization and modernization in growing international locations, through editing the surroundings and people's lifestyles, can also additionally extrude the epidemiologic styles of numerous cancers in those regions [10]. The prevalence of most cancers is growing in growing international locations due to aging, and most cancers-related lifestyle elements along with smoking, obesity, and bodily inactivity [11].

The aims of this research are:

- Present most cancers occurrence costs at nearby degree of East area of Libya, primarily based totally upon consequences of National Cancer Registry Program.
- Give clues to the weight and sample of most cancers in Eastern of Libya with a purpose to assist for choice making in most cancers manage and management.

Material and methods

According to the 2018 census, over 6 470 957 million humans lived in Libya, & fifty two Cities, with 28.5% (n = 1613749) living with inside the Eastern a part of the country. The collected (779 new subjects) retrospectively and analyzed information on most cancers occurrence had been acquired over a 2-12 months look at length from January 1st, 2018 to April 31st, 2019 from the Benghazi and Tobruk Cancer Registries, This look at changed into a retrospective evaluation performed amongst those who had been recognized and/or handled for one-of-a-kind sorts of most cancers with inside the east location of Libya, the usage of scientific and pathological information type of most cancers analysis changed into made consistent with the International Classification of Disease. The sufferers had been recognized thru numerous techniques, specifically microscopic verification and clinically/radiologically analysis. All histologically validated most cancers instances that had been recorded with inside the most cancers registry of Benghazi and Tobruk Cancer Registries throughout the 12 months 2018 - 2019 had been reviewed on this retrospective look at. Data had been acquired from the laptop data comprised demographic traits along with age, sex, residence, date of analysis, web page of most cancers, and histopathological analysis which had been coded the usage of the World Health Organization's International Classification of Diseases, tenth Revision [12]. Duplicate access checking changed into completed with the aid of using evaluating the information acquired from the Department of Pathology and Laboratory information for all most cancers instances acquired from the one-of-a-kind medical devices and clinics throughout the location. The diagnoses of the instances had been primarily based totally at the histopathological reviews made with the aid of using a few histopathologists with large experience.

Data analysis

Data had been analyzed the usage of the Statistical Package for the Social Science, (SPSS) model 20 (SPSS, Inc., Chicago, IL, USA). Descriptive information expressed as mean, trendy deviation (SD), and the frequency with chances had been calculated for c program language period and express variables, respectively. Comparing occurrence chances among ladies and men the usage of the Chi-rectangular test.

Results and discussion

The pattern is 779 new suspected most cancers sufferers who have been admitted to the Benghazi and Tobruk Cancer Registries, at some point of the 2-12 months observe duration from January 1st, 2018 to April 31st, 2019. Males accounted for 31.96 % (n = 249 sufferers) of the cases, and women for 68.03% (n = 530 sufferers) as shown in Figure1.

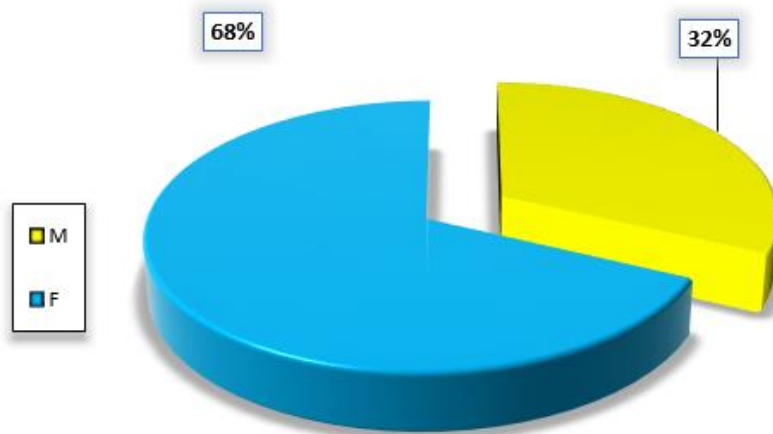


Figure 1 Incidence rate of cancer in Eastern part of Libya by gender.

The standard common age of most cancers sufferers become (55 ± 13.8) starting from 15 to sixty four years? The common age of male sufferers become ($59 + 15.32$) and the common age of woman sufferers become ($53 + 12.61$). The male organization elderly > sixty four years debts for greater than (47%) of the most cancers instances, whilst the woman organization elderly among 15-sixty four years debts for greater than (73%) of the most cancers instances. The age distribution of all cancers consistent with gender is provided in Table 1. Also, desk 1 illustrates the frequency of the most cancers instances and ASRs in line with a hundred,000 person/year, for all age organizations at some stage in the study, the mixed age-standardized occurrence rate (ASR) for all cancers in men and women collectively become 38.ninety five in line with a hundred 000. All as proven in determine all as shown in figure 2.

Table 1 Cancer incidence in Eastern part of Libya by age & sex

Ages	Male	Percent	Female	Percent %	Total
< 15	1	0.12	0	0	1
15-64	150	26.2	422	73.8	572
>64	98	47.6	108	52.4	206
total	249	31.96	530	68.03	779
population of eastern region of Libya					2000000
total incident cases of cancer male & female					779
all ages standardized incidence rate ASIR (per 100000)					38.95
Mean age \pm S.D					55 ± 13.8

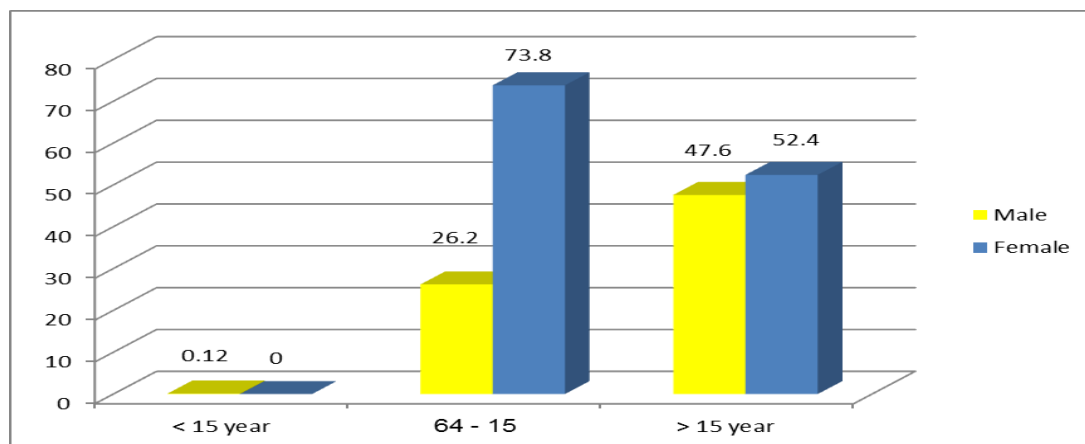


Figure 2 Cancer incidence in eastern region of Libya by age & sex.

The malignancies in men were cancers of the LUNG (17.7%, $n = 44$), prostate (16.5%, $n = 41$), RECTUM (13.3%, $n = 33$), lustrated in Table (2) and Figure (3) explain distribution according to cancer situation in males.

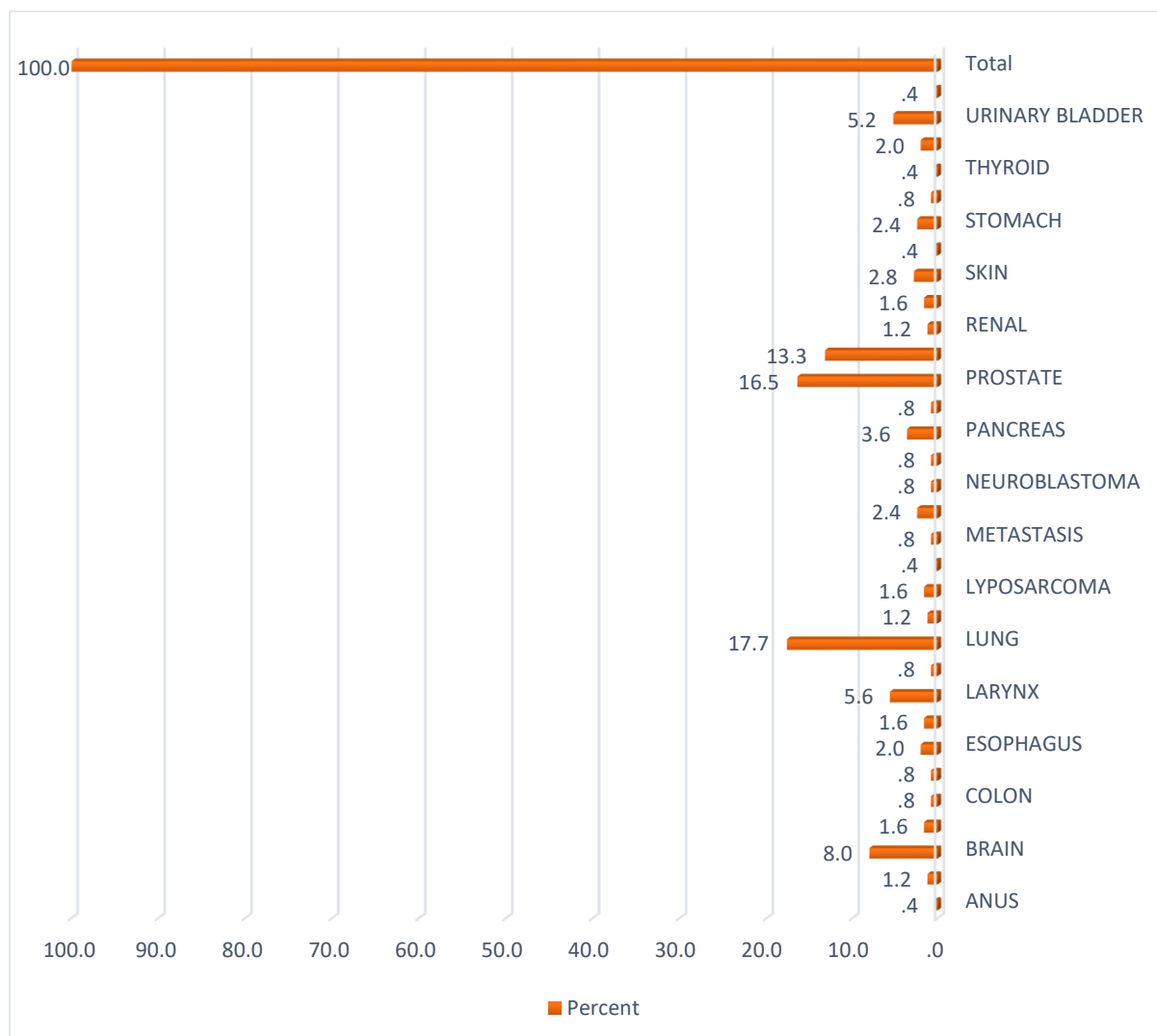


Figure 3 Cancer in males.

Table 2 the sites of cancer in males

Site	Frequency	Percent %	Cumulative Percent
ANUS	1	0.4	0.4
BONE	3	1.2	1.6
BRAIN	20	8.0	9.6
BREAST CANCER	4	1.6	11.2
COLON	2	0.8	12.0
ENDOMETRIAL	2	0.8	12.9
ESOPHAGUS	5	2.0	14.9
HIP JOINT	4	1.6	16.5
LARYNX	14	5.6	22.1
LIVER	2	0.8	22.9
LUNG	44	17.7	40.6

LYMPHOMA	3	1.2	41.8
LYPOSARCOMA	4	1.6	43.4
MENINGINE	1	0.4	43.8
METASTASIS	2	0.8	44.6
NASOPHARYNX	6	2.4	47.0
NEUROBLASTOMA	2	0.8	47.8
NEUROENDOCRINE	2	0.8	48.6
PANCREAS	9	3.6	52.2
PELVIS	2	0.8	53.0
PROSTATE	41	16.5	69.5
RECTUM	33	13.3	82.7
RENAL	3	1.2	83.9
SARCOMA	4	1.6	85.5
SKIN	7	2.8	88.4
SPINE	1	0.4	88.8
STOMACH	6	2.4	91.2
TESTIS	2	0.8	92.0
THYROID	1	0.4	92.4
TONGUE	5	2.0	94.4
URINARY BLADDER	13	5.2	99.6
VOCALCORD	1	0.4	100.0
Total	249	100.0	

For women, the maximum not unusual place malignancies have been observed to be cancers of the breast (71.1%, n=377), Uterus (5.3%, n = 28), Rectum (4.9%, n=26), as proven in Table (3) and Figure (4) provide an explanation for the distribution in line with the web sites of most cancers in females.

Table 3 The sites of cancer in females

Site	Frequency	Percent %	Cumulative Percent
ANUS	1	0.2	0.2
BILE DUCT	1	0.2	0.4
BONE	2	0.4	0.8
BRAIN	9	1.7	2.5
BREAST CANCER	377	71.1	73.6
CERVIX	6	1.1	74.7
COLON	3	0.6	75.3
ENDOMETRIAL	14	2.6	77.9
GESTATIONAL TROPHOBLASTIC	2	0.4	78.3
LARYNX	1	0.2	78.5
LIVER	1	0.2	78.7
LUNG	3	0.6	79.2
LYMPHOMA	1	0.2	79.4
LYPOSARCOMA	2	0.4	79.8
MENINGINE	1	0.2	80.0
METASTASIS	3	0.6	80.6
NASOPHARYNX	1	0.2	80.8

OVARY	7	1.3	82.1
PANCREAS	2	0.4	82.5
PELVIS	2	0.4	82.8
PITUTARY	1	0.2	83.0
RECTUM	26	4.9	87.9
RENAL	3	0.6	88.5
SALVARY GLAND	1	0.2	88.7
SARCOMA	1	0.2	88.9
SHOULDER	1	0.2	89.1
SKIN	6	1.1	90.2
SPINE	1	0.2	90.4
STOMACH	1	0.2	90.6
THYROID	14	2.6	93.2
TONGUE	3	0.6	93.8
URINARY BLADDER	2	0.4	94.2
UTERINE	1	0.2	94.3
UTERUS	28	5.3	99.6
VULVA	2	0.4	100.0
Total	530	100.0	

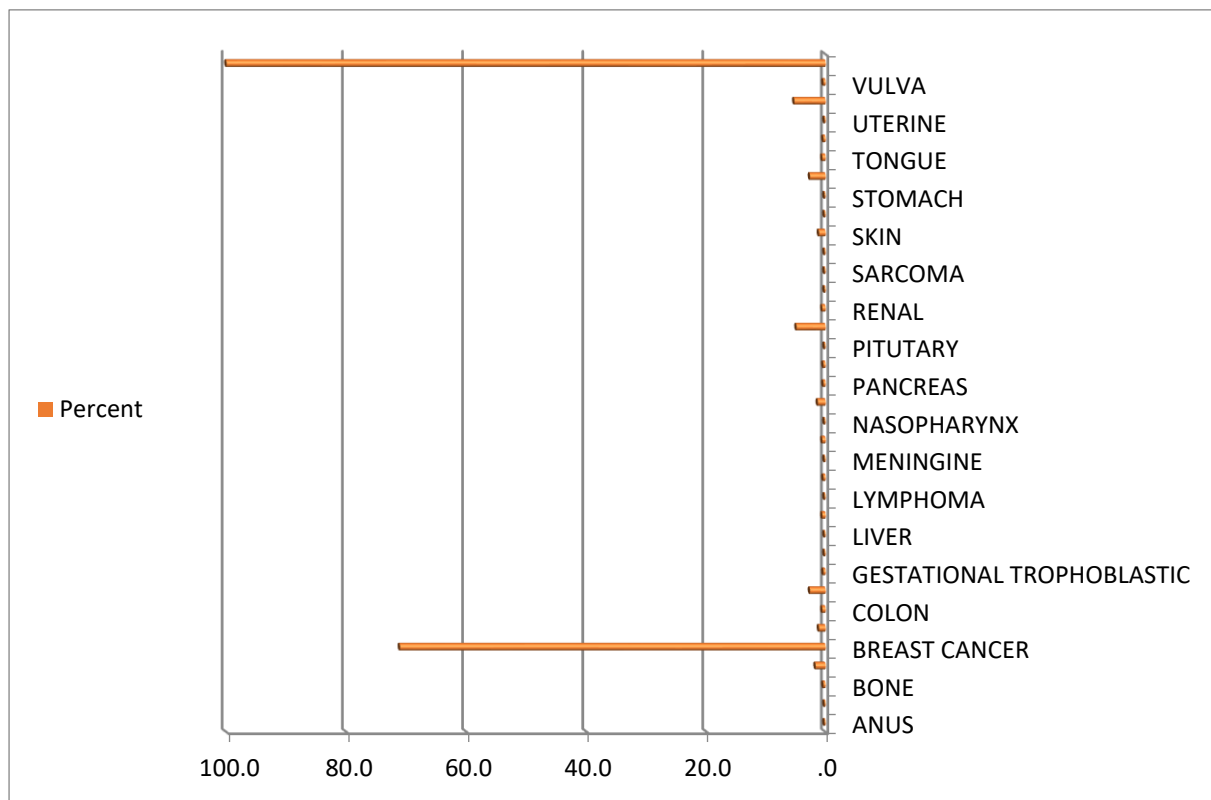


Figure 4 The sites of cancer in females.

The maximum common cancers in each genders have been as follows: Breast (48.90%), Rectum (7.57%) and Lung (6.03%)

Fig 5 shows the five major sites of cancer incidence by gender in eastern region of Libya.

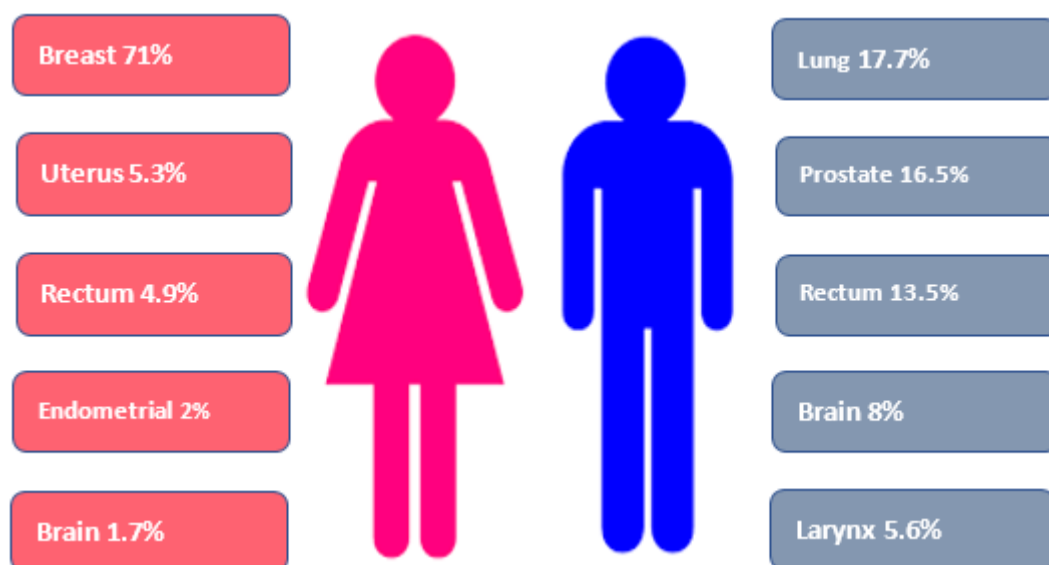


Figure 5 Percentage of the five major sites of cancer incidence by gender in eastern region of Libya.

Comparing incidence percentages between males and females using Chi-square test shows that the asymp. Test value 0.000 is less than 0.05 this leads to reject H_0 we conclude that cancer incidence percentages in males & females are highly significantly different and this significant difference is toward females as shown in table 4.

Table 4 Incidence percentages between males and females.

Gender	Frequency	Percent %	Valid Percent
M	249	32.0	32.0
F	530	68.0	68.0
Total	779	100.0	100.0
Gender	Observed N	Expected N	Residual
M	249	389.5	-140.5
F	530	389.5	140.5
Total	779		
Statistics		Sex	
Chi-Square	101.362 ^a		
df	1		
P-Value	0.000		
Ho: incidence of cancer in males = and percentage of cancer in females			
H1: incidence of cancer in males \neq incidence of cancer in females			

Incident instances of most cancers distribution of Japanese location of Libya from 1/1/2018 to 1/4/2019 are proven in desk 5. The pinnacle 6 occurrence fees regions that contributed the finest wide variety of most cancers instances are, Benghazi which contributed the most important percentage of most cancers instances in Japanese Libya (33.1%, n = 258), observed via way of means of TOBRUK (28.4%, n = 221), DERNAH (8.9%, n = 69), ALBEDA (6.7%, n = 52), ALMARJ (4%, n = 31) and AJDABIA (3.3%, n = 26). The maximum not unusual place most cancers (overall) changed into determined to be breast most cancers in all of the pinnacle 5 principal cities.

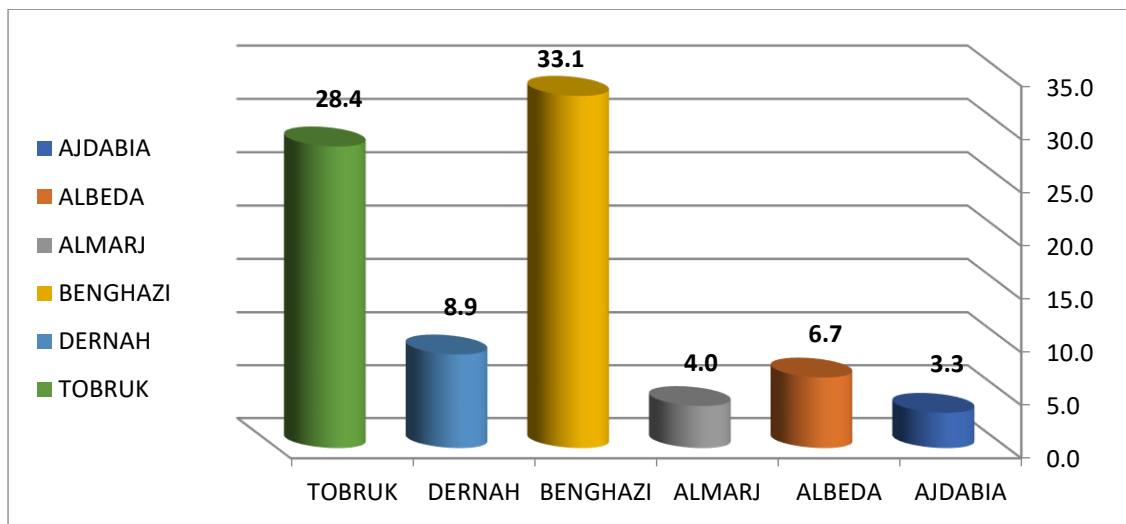


Figure 6 Top 6 incidence rates of cancer in eastern region by city

Table 5 Incident cases of cancer in eastern region of Libya by city.

City	Frequency	Percent %
ABYAR	6	0.8
AIN MARA	5	0.6
AJDABIA	26	3.3
ALABRG	2	0.3
ALBEDA	52	6.7
ALBURDY	2	0.3
ALFAIDYA	3	0.4
ALGUBA	5	0.6
ALHMEDA	1	0.1
ALJOFRA	1	0.1
ALKOFRA	4	0.5
ALMARJ	31	4.0
ALQEIQEB	3	0.4
ALRAJMA	1	0.1
ALTIMIMI	1	0.1
ALZAWIA	4	0.5
AWBARE	1	0.1
AZIAT	1	0.1
BALKHATHER	1	0.1
BEN JAWAD	1	0.1
BENGHAZI	258	33.1
BENWALED	3	0.4
BERSES	1	0.1
BIRALASHAB	2	0.3
BREGA	2	0.3
DERNAH	69	8.9
DERYANA	1	0.1
EMSAED	2	0.3
GHERYAN	1	0.1
JARDES	2	0.3
JERDENA	1	0.1
KAMBOT	1	0.1
MISRATA	1	0.1
QASR ALJADY	2	0.3
SABHA	10	1.3

SEDEKHALIFA	3	0.4
SHAHAT	11	1.4
SHATALBEDEN	1	0.1
SOBRATA	1	0.1
SOLUG	3	0.4
SUSA	3	0.4
TAKNES	1	0.1
TAWERGHA	3	0.4
TEKA	2	0.3
TELMETHA	1	0.1
TOBRUK	221	28.4
TOKRA	5	0.6
TRIPOLI	10	1.3
UM ALRZM	5	0.6
ZALLA	1	0.1
ZLETEN	1	0.1
Total	779	100.0

Discussion

A big range of epidemiological research on most cancers incidence were achieved in Libya to outline the value of the problem [13, 7, and 14]. The adulthood of those reviews hasn't exceeded the age formalized incidence charge. In the examine, the excessive charge of average most cancers instances plant amongst Libyan girls turned into inconsistent with former reviews from Libya. In an examine achieved in northwest Libya, of all most cancers instances, 51.1 had been manly and 49.9 womanish [14]. [6]. On the Epidemiology of cancers in northeast Libya this joker to womanish price was 1:2, [6] In this regard, it ought to be referred to that with inside the all referred to research, and populace gender wasn't equal. A have a look at on most cancers facts and numbers in 2014 predicted that the maximum common cancers have been prostate, lung, colorectal, bladder, and pores and skin in men; and bone, lung, colorectal, uterine corpus, and thyroid in ladies, independently. [9]. The outcomes of the prevailing have a look at, on this regard, have been massively one-of-a-kind, wherein simplest lung, colorectal and prostate cancers in men and bone, colorectal, and uterus corpus in ladies, are some of the pinnacle 5 cancers with inside the list, independently. Differences with inside the sorts and incidence price of cancers in one-of-a-kind geographic areas are because of more than one elements. Several research have connected multitudinous one-of-a-kind forms of most cancers-inflicting agents, of which 5% – 10% are inheritable elements and 90% – 95% environmental elements and the lifestyles of people. [15]. Hence, with inside the gift observe, the version in the superiority prices in colorful styles of cancers with inside the east place of Libya is probably associated with the cited factors. In general, most cancers occurrence and mortality prices had been superior in superior countries. This can be associated with intake of excessive fats dairy merchandise and excessive pork diet, and bodily inactiveness with acting rotundity. [15], Bone is the maximum not unusual place most cancers amongst Libyan womanish instances with a frequency of 71. This excessive price of bone most cancers has similarities to the previous reviews from Libya [13, 6, and 14] and away. [16]. Routine bone most cancers webbing would not assist bone most cancers, however it may assist discover most cancers in advance whilst it is utmost treatable. Grounded on the prevailing observe locating, it is logical to propose comparable webbing in Libya for the maximum women, and normal mammograms can start on the age of 40 year, however precise pointers range with the aid of using age and hazard. The gift observe indicates that colorectal most cancers is the 1/3 maximum not unusual place most cancers in each men and ladies. This locating is in settlement with former research from Libya which exhibit that colorectal most cancers is the maximum contemporary gastrointestinal malice in Libyan men and ladies. [13, 7, 14]. To attain early discovery of colorectal, a complete most cancers schooling application and a stricter edition of a webbing application for early discovery in addition to a webbing of excessive hazard populace for colorectal must be taken into consideration in Libya. Age influences colorectal most cancers occurrence in addition than some other demographic factor. Former studies show that the prevalence of sporadic colorectal cancer increases dramatically above the age of 50 times for all age groups. [17], Lung cancer is the first common single cancer among Libyan joker cases (17.7%). This is similar to the findings reported from former studies in east and west Libya. It's most probably due to the increase in smoking habits and artificial profanations, but the advancements in individual installations, as well as referral, play a fresh part. The smoking habit is high in Libya, and it's adding with time. The limitation of the present study is the data collected from the both Cancer Registries at eastern of Libya which is limited to age, coitus, and type of cancer. It lacks information related to cases' occupation, socioeconomic status, education, life family history, and threat factors for cancer development.

The lack of a proper attestation system, absent digitalization of case records and no central authority to follow cancer cases on a long term base (i.e., surveillance).

Conclusion:

Despite the existing examine comprising most effective 1 time and four months of data, the facts supplied affords a properly correct description of most cancers incidence with inside the Eastern a part of Libya and might make a contribution to a higher information of the epidemiology of colorful cancers in Libya and therefore supply a beneficial associate for the decision-makers to assemble green critiques approximately most cancers manipulate software and packages in Libya. Cancer surveillance plans want to be set in vicinity in Libya so that it will cowl the traits and incidence rates. With those establishments, an extrude may be made in our u. s. a. In addition, lift the location of healthcare in our installations. Webbing packages are plaintively demanded in Libya so that it will fight donations at past due stages.

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