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KNOWLEDGE OF ESOPHAGEAL CANCER IN MAJMAAH CITY, SAUDI ARABIA

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ABSTRACT

Introduction: Esophageal cancer is the sixth most common cause of cancer-related death worldwide.[1] Esophageal cancer including squamous cell carcinoma (SCC) and adenocarcinoma is considered as a serious malignancy with respect to prognosis and a fatal outcome in the majority of cases. **Methods and materials:** This study was a cross-sectional study. Data were gathered from 143 participants aged 18 years and above, from Majmaah city. The project took about 2 months to be completed (June / 2016 – July / 2016)**. Results:** The participants were divided to 3 age groups and the most preventable age group was from 30 to 49 years old with 43.4% of participants. In terms of risk factors, 49.7% thought that smoking tobacco was the only risk factor, 29.4% alcohol, 7% family history and 3.5 longstanding heart burn with nearly half of patients (49%) didn't know any. Most participants (61.5%) didn't know any symptom of esophageal cancer while the majority who did (31.5%), accurately stated difficulty of swallowing as the most common symptom. Regarding cancer treatment options, 49.7% thought that non-surgical therapy was the treatment of choice, while 40.6% had no idea. The second to come treatment option was surgery (4.2%) followed by herbal therapy (2.1%) with 3.5% thought it has no cure at all. The relation between age and esophageal cancer knowledge variables was statistically significant throughout different age groups in the knowledge of both risk factors and treatment options of esophageal cancer with p-values of 0.043 and 0.001, respectively. The relation between gender and esophageal cancer knowledge variables was statistically significant in the knowledge of associated symptoms. **Conclusion:** The study concluded our targeted population had relatively good, yet

promising level of knowledge of cancer. However, they varied identifying different variables of esophageal cancer. A positive statistical relationship was found between esophageal cancer knowledge with age and gender.

INTRODUCTION

Esophageal cancer is the sixth most common cause of cancer-related death worldwide.[1] Esophageal cancer including squamous cell carcinoma (SCC) and adenocarcinoma is considered as a serious malignancy with respect to prognosis and a fatal outcome in the majority of cases.[2-3] For squamous cell cancers, transition models have described squamous epithelium undergoing inflammatory changes that progress to dysplasia and carcinoma in situ.[4] For adenocarcinoma Barrett's esophagus (BE) is a major precursor factor.[5]

Cigarettes and hookah smoking, nass use (a chewing tobacco product), opium consumption, hot tea drinking, poor oral health, low intake of fresh fruit and vegetables and low socioeconomic status have been associated with a higher risk of esophageal squamous cell carcinoma.[6] Barrett's esophagus is clearly recognized as a risk factor for esophageal adenocarcinoma.[3] obese individuals have a higher risk of developing esophageal cancer because the adipose tissue influences tumor development.[7] From 1975 to 2004, age-adjusted incidence of oesophageal carcinoma in white men increased from 5·76 to 8·34 per 100 000 person-years, largely due to to 463% increase in oesophageal adenocarcinoma. In white women an increase, albeit less striking, was also seen in oesophageal adenocarcinoma.[8]

A study was conducted in the Linxian general population, China, show that Increased age and a positive family history of esophageal cancer were significantly associated with oesophageal carcinoma.[9] Another retrospective cohort study of esophageal cancer was conducted to examine dietary and other potential risk factors in Linxian, a high-risk area in P.R. China, show that increased age, male gender, a positive family history, low education level, surface-water use and pork consumption were the strongest risk factors for esophageal cancer, while use of corn as a primary staple and infrequent consumption of fresh vegetables also were possible risk factors.[10]

The overall 5-year survival of patients with oesophageal carcinoma ranges from 15% to 25%. Diagnoses made at earlier stages are associated with better outcomes than those made at later stages.[11] A study was conducted at Tenwek Hospital Community Health Center, Bomet, Kenya, show that 33% thought that cancer is a virus and 35% thought that it is contagious.

47% did not think that family history is a risk factor. 79% accurately claimed dysphagia as the most common symptom for esophageal cancer. 40% thought that herbal therapy is the optimal treatment for esophageal cancer.[12]

Due to the lack of structured health education programs, it is hypothesized that knowledge of cancer and its associated signs, symptoms, and risk factors is also poor in Majmaah. The purpose of this study was to determine the level of knowledge of esophageal cancer in the targeted community, Majmaah city.

METHODS AND MATERIALS

This study was a cross-sectional study. The study was conducted in Majmaah city. The study population was residents of Majmaah aged 18 years and above of both genders. The participants were143. The project took about 2 months to be completed (June / 2016 – July / 2016)**.**

The sample type was simple random sampling collected from different locations in Majmaah city. the data were collected by using pre-tested and self-constructed questionnaire which was translated to local language (Arabic).

The sample Size was calculated through the following formula:
N= Z2 x PQ / D2

Participants enrolled: A total of 143 participants, of which 62 were males and 81 were females.

Prior to filling out the questionnaire, the participants were informed about the study and were given instructions about how to fill out the questionnaire completely and truthfully. The data was entered and analyzed using SPSS 22.0. Mean +S.D was given for quantitative variables like age etc. Frequencies and percentages were given for qualitative variables. Pearson Chi Square and Fisher Exact test were applied to observe associations between qualitative variables. A p-value of <0.05 was considered as statistically significant.

Ethical considerations

Confidentiality was maintained by data coding. Approval to conduct the study was obtained from the Basic Medical and Health Research Center in Majmaah University. A written consent was obtained from each participant.

RESULTS

We included 143 participants, 62 were males and 81 were females. They were divided to 3 age groups and the most preventable age group was from 30 to 49 years old with 43.4% of participants. 66.4% got university degree followed by 26.6% with high school degree, 2.8% with middle school, 2.1% with primary school and 2.1% illiterate. Also, 32.9% were unemployed and 21.0% were office workers. 14.7% were smokers and 4.7% were alcohol drinker. Only, 72.7% of the participants had no family history with cancer (Table 1).

Table 1: baseline characteristics of participants.

Variable	Value
Age (%):	
18-29	56 (39.2)
30-49	62 (43.4)
≥ 50	25 (17.5)
Gender (%):	
Male	62 (43.4)
Female	81 (56.6)
Education (%):	
Primary	3 (2.1)
Middle	4 (2.8)
High school	38 (26.6)
University	95 (66.4)
Illiterate	3 (2.1)
Employment (%):	
Student	26 (18.2)
Teacher	20 (14.0)
Office	30 (21.0)
Health care provider	7 (4.9)
Unemployed	47 (32.9)
Other	13 (9.1)
Smoker (%):	21 (14.7)
Alcohol drinker (%):	7 (4.9)
Family history (%):	
Cancer	35 (24.5)
Esophageal cancer	4 (2.8)
No family history	104 (72.7)

Results from the questions on cancer knowledge were as follows: 76.2% of participants accurately answered that cancer is an abnormal growth of cells, however 4.2% thought that cancer is a virus and 3% thought that cancer is contagious. Most participants (98.6%) did answer that cancer can be cured if detected early and 72.7% confirmed that there are things that you can do to avoid getting certain cancers. Knowledge about cancer prevalence was relatively good.

The most common cancers in Saudi Arabia are breast, colorectal, thyroid and Non-Hodgkin lymphoma in that order; 35% of participants thought lung cancer is the most common cause of death among cancer patients followed by breast (7.5%), esophagus (11.2) and prostate (1.4%). (Table 2).

Table 2: cancer knowledge.

Variable	Value
Cancer definition (%):	
Abnormal growth of cells	109 (76.2)
Virus	6 (4.2)
Disease of old age	3 (2.1)
Acquired immunodeficiency	2 (1.4)
I don't know	23 (16.1)
Cancer is contagious (%):	3 (2.1)
Prevention is possible (%):	104 (72.7)
Early cancer detection improves cure rate (%):	141 (98.6)
The most common causes of cancer death (%):	
Esophagus	16 (11.2)
Prostate	2 (1.4)
Lung	50 (35.0)
Breast	25 (17.5)
I don't know	50 (35.0)

In terms of risk factors, 49.7% thought that smoking tobacco was the only risk factor, 29.4% alcohol, 7% family history and 3.5 longstanding heart burn with nearly half of patients (49%) didn't know any. Most participants (61.5%) didn't know any symptom of esophageal cancer while the majority who did (31.5%), accurately stated difficulty of swallowing as the most common symptom.

Regarding cancer treatment options, 49.7% thought that non-surgical therapy was the treatment of choice, while 40.6% had no idea. The second to come treatment option was surgery (4.2%) followed by herbal therapy (2.1%) with 3.5% thought it has no cure at all. (Table 3).

Table 3: Esophageal cancer knowledge.

Variable	Value
Risk factors for esophageal cancer (%):	
Smoking tobacco	71 (49.7)
Heavy alcohol use	42 (29.4)
Family history	10 (7.0)
Long standing heartburn	5 (3.5)
I don't know	70 (49.0)

Symptoms associated with esophageal cancer (%):	
Fever	8 (5.6)
Difficulty swallowing	45 (31.5)
Cough	1 (0.7)
Headache	1 (0.7)
I don't know	88 (61.5)
Treatment options for esophageal cancer (%):	
Alternative medicine "Herbal therapy"	3 (2.1)
Surgery	6 (4.2)
Non-surgical therapy "chemotherapy and radiation"	71 (49.7)
No cure	5 (3.5)
I don't know	58 (40.6)

A chi-square test of independence was performed to examine the relation between age and esophageal cancer knowledge. The relation between these variables was statistically significant throughout different age groups in the knowledge of both risk factors and treatment options of esophageal cancer with p-values of 0.043 and 0.001, respectively. However, there was no statistically significant relationship regarding the knowledge of associated symptoms with a p-value equal to 0.263. (Table 4).

Table 4: age and esophageal cancer knowledge.

Variable	**18-29**	**30-49**	**≥ 50**	**p-value**
Risk factors for esophageal cancer (%):				
Smoking tobacco	29 (20.3)	36 (25.6)	6 (4.2)	0.043*
Heavy alcohol use	16 (11.2)	22 (15.4)	4 (2.8)	
Family history	6 (4.2)	2 (1.4)	2 (1.4)	
Long standing heartburn	5 (3.5)	3 (2.1)	5 (3.5)	
I don't know	23 (16.1)	24 (16.8)	16 (11.2)	
Symptoms associated with esophageal cancer (%):				
Fever	3 (2.1)	5 (3.5)	0	0.263
Difficulty swallowing	13 (9.1)	22 (15.4)	10 (7.0)	
Cough	0	1 (0.7)	0	
Headache	0	1 (0.7)	0	
I don't know	37 (25.9)	33 (23.1)	15 (10.5)	
Treatment options for esophageal cancer (%):				
Alternative medicine "Herbal therapy"	2 (1.4)	0	1 (0.7)	0.001**
Surgery	5 (3.5)	0	1 (0.7)	
Non-surgical therapy "chemotherapy and radiation"	0	42 (29.4)	8 (5.6)	
No cure	1 (0.7)	4 (2.8)	0	
I don't know	27 (18.9)	16 (11.2)	15 (10.5)	

* P value < 0.05; ** P value < 0.01

A chi-square test of independence was performed to examine the relation between gender and esophageal cancer knowledge. The relation between these variables was statistically

significant in the knowledge of associated symptoms with p-value of 0.019. Nevertheless, there was no statistically significant relationship with both risk factors and treatment options of esophageal cancer with p-values equal to 0.397 and 0.139, respectively. (Table 5).

Table 5: gender and esophageal cancer knowledge.

Variable	Male	Female	p-value
Risk factors for esophageal cancer (%):			
Smoking tobacco	17 (11.9)	44 (30.8)	0.397
Heavy alcohol use	14 (9.8)	28 (19.6)	
Family history	5 (3.5)	5 (3.5)	
Long standing heartburn	5 (3.5)	8 (5.6)	
I don't know	31 (21.7)	32 (22.4)	
Symptoms associated with esophageal cancer (%):			
Fever	1 (0.7)	7 (4.9)	0.019**
Difficulty swallowing	14 (9.8)	31 (21.7)	
Cough	0	1 (0.7)	
Headache	1 (0.7)	0	
I don't know	46 (32.2)	42 (29.4)	
Treatment options for esophageal cancer (%):			
Alternative medicine "Herbal therapy"	2	1	0.139
Surgery	2	4	
Non-surgical therapy "chemotherapy and radiation"	25	46	
No cure	4		
I don't know	29	29	

** P value < 0.01.

DISCUSSION

Esophageal cancer (EC) is one of the prevalent cancers in the world, it is the 8th most common cancer, with an estimated incidence of 456,000 cases and about 400,000 deaths in 2012 with a marked regional variation in both incidence and mortality all over the world.[13-14] Epidemiological investigations have reported that the etiologiy of EC has many environmental risk factors, as tobacco smoking, heavy alcohol drinking, micronutrient deficiency and carcinogen exposure especially dietary ones.[15-16] Additionally, studies, conducted in high-risk areas, have also reported a strong familial aggregation of cases within families, showing that genetic factors may also play a role in the development of EC.[17] Only 7.0% of this study participants have chosen family history as a risk factor but 49.7% thought that smoking is a risk factor and 29.4% chosen alcohol drink. Also, a significant number of participants know that cancer is an Abnormal growth of cells (76.6%) but only 2.1% is contagious.

However, the fact that 61.5% of participants reported they don't know the correct symptom with esophageal cancer, 98.6% think that early cancer detection improves cure rate.

The most common symptom of EC is difficulty in swallowing which is the most preventable choice of participants, which is initially experienced with hard foods and then with softer foods as well liquids.[18] Pain is usually less at first during swallowing.[18]

If EC has been diagnosed in an early stage, surgical treatment option with a curative intention may be present. Some small tumors that involve the mucosa or esophageal lining may be removed by endoscopic mucosal resection (EMR).[19-20] However, curative surgery of early-stage lesions may lead to removal of all or a portion of the esophagus which is a difficult operation with a high risk of mortality or post-operative complications.[21]

Chemotherapy and radiation which becomes in the most common choice of participants depend on the tumor type, but tend to be cisplatin-based every three weeks with fluorouracil (5-FU). Recently, addition of epirubicin was better than other regimens in advanced non-respectable cancer.[22]

For the best managed treatment, a multidisciplinary team should by present to cover the different specialties involved.[23-24] Proper nutrition supply must be assured and adequate dental care is essential. Several factors influence treatment decisions as the stage and cellular type of cancer, along with the person's general condition and any other present diseases.[21]

Although, many studies have discussed individuals' knowledge of esophageal cancer in Europe, Africa and the United States, this is the first study looking at this issue in Saudi Arabia. There have been a set of studies investigating knowledge of other malignancies, such as colorectal and breast cancer in Saudi women, but not specifically looking for esophageal cancer awareness.[25-26-27]

CONCLUSION

The study concluded that our targeted population had relatively good, yet promising level of knowledge of cancer. However, they varied identifying different variables of esophageal cancer. A positive statistical relationship was found between esophageal cancer knowledge with both age and gender.

REFERENCES

1. Parkin DM, Bray F, Ferlay J, Pisani P. Estimating the world cancer burden: Globocan 2000. Int J Cancer, 2001; 94: 153–6.
2. Retraction: The candidate tumor suppressor gene ECRG4 inhibits cancer cells migration and invasion in esophageal carcinoma. J Exp Clin Cancer Res. 2011; 30: 19. [PMC free article] [PubMed]
3. Esophageal cancer: epidemiology, pathogenesis and prevention. Nat Clin Pract Gastroenterol Hepatol. 2008; 5: 517–526.
4. Dawsey SM, Lewin KJ, Wang GQ, Liu FS, Nieberg RK, Yu Y, Li JY, Blot WJ, Li B, Taylor PR. Squamous esophageal histology and subsequent risk of squamous cell carcinoma of the esophagus. A prospective follow-up study from Linxian, China. Cancer. 1994; 74: 1686–1692.
5. Kountourakis P, Papademetriou K, Ardavanis A, Papamichael D. Barrett's esophagus: treatment or observation of a major precursor factor of esophageal cancer? J BUON. 2011; 16: 425–430.
6. Mao WM, Zheng WH, Ling ZQ. Epidemiologic risk factors for esophageal cancer development. Asian Pac J Cancer Prev. 2011; 12: 2461–2466.
7. Nieman KM, Romero IL, Van Houten B, Lengyel E. Adipose tissue and adipocytes support tumorigenesis and metastasis. Biochim Biophys Acta. 2013: Epub ahead of print.
8. LM Brown, SS Devesa, WH Chow. Incidence of adenocarcinoma of the esophagus among white Americans by sex, stage and age. J Natl Cancer Inst, 2008; 100: 1184-1187
9. Tran, G. D., Sun, X.-D., Abnet, C. C., Fan, J.-H., Dawsey, S. M., Dong, Z.-W., Mark, S. D., Qiao, Y.-L. and Taylor, P. R. (2005), Prospective study of risk factors for esophageal and gastric cancers in the Linxian general population trial cohort in China. Int. J. Cancer, 113: 456–463. doi:10.1002/ijc.20616
10. Yu Yu Philip R. TaylorJun-Yao Li Sanford M. Dawsey. Retrospective cohort study of risk-factors for esophageal cancer in Linxian, People's Republic of China. May 1993; 4(3): 195–202.
11. Pennathur A, Gibson MK, Jobe BA, Luketich JD. Oesophageal carcinoma. Lancet. 2013; 381: 400–412.
12. Duron V, Bii J, Mutai R, et al. Esophageal cancer awareness in Bomet district, Kenya. African Health Sciences. 2013; 13(1): 122-128. doi:10.4314/ahs.v13i1.17.

13. Pisani, P.; Parkin, D. M.; Ferlay, J., Estimates of the worldwide mortality from eighteen major cancers in 1985. Implications for prevention and projections of future burden. International journal of cancer, 1993; 55(6): 891-903.
14. Kandiah, K.; Chedgy, F. J.; Subramaniam, S.; Thayalasekaran, S.; Kurup, A.; Bhandari, P., Early squamous neoplasia of the esophagus: The endoscopic approach to diagnosis and management. Saudi journal of gastroenterology: official journal of the Saudi Gastroenterology Association, 2017; 23(2): 75-81.
15. Gao, Y. T.; McLaughlin, J. K.; Blot, W. J.; Ji, B. T.; Benichou, J.; Dai, Q.; Fraumeni, J. F., Jr., Risk factors for esophageal cancer in Shanghai, China. I. Role of cigarette smoking and alcohol drinking. International journal of cancer, 1994; 58(2): 192-6.
16. Engel, L. S.; Chow, W. H.; Vaughan, T. L.; Gammon, M. D.; Risch, H. A.; Stanford, J. L.; Schoenberg, J. B.; Mayne, S. T.; Dubrow, R.; Rotterdam, H.; West, A. B.; Blaser, M.; Blot, W. J.; Gail, M. H.; Fraumeni, J. F., Jr., Population attributable risks of esophageal and gastric cancers. Journal of the National Cancer Institute, 2003; 95(18): 1404-13.
17. Gibbons, R. J., Histone modifying and chromatin remodelling enzymes in cancer and dysplastic syndromes. Human molecular genetics, 2005; 14 Spec No 1, R85-92.
18. Ferri, F., ed, Esophageal Tumors. Elsevier: 2012.
19. Fernandez-Esparrach, G.; Calderon, A.; de la Pena, J.; Diaz Tasende, J. B.; Esteban, J. M.; Gimeno-Garcia, A. Z.; Herreros de Tejada, A.; Martinez-Ares, D.; Nicolas-Perez, D.; Nogales, O.; Ono, A.; Orive-Calzada, A.; Parra-Blanco, A.; Rodriguez Munoz, S.; Sanchez Hernandez, E.; Sanchez-Yague, A.; Vazquez-Sequeiros, E.; Vila, J.; Lopez Roses, L., Endoscopic submucosal dissection. Endoscopy, 2014; 46(4): 361-70.
20. Sun, F.; Yuan, P.; Chen, T.; Hu, J., Efficacy and complication of endoscopic submucosal dissection for superficial esophageal carcinoma: a systematic review and meta-analysis. Journal of cardiothoracic surgery, 2014; 9: 78.
21. Pennathur, A.; Gibson, M. K.; Jobe, B. A.; Luketich, J. D., Oesophageal carcinoma. Lancet (London, England), 2013; 381(9864): 400-12.
22. Ross, P.; Nicolson, M.; Cunningham, D.; Valle, J.; Seymour, M.; Harper, P.; Price, T.; Anderson, H.; Iveson, T.; Hickish, T.; Lofts, F.; Norman, A., Prospective randomized trial comparing mitomycin, cisplatin, and protracted venous-infusion fluorouracil (PVI 5-FU) With epirubicin, cisplatin and PVI 5-FU in advanced esophagogastric cancer. Journal of clinical oncology: official journal of the American Society of Clinical Oncology, 2002; 20(8): 1996-2004.
23. Tobias, J. S. H., Daniel Cancer and its Management. 6th ed.; 2010; p 257.

24. Berry, M. F., Esophageal cancer: staging system and guidelines for staging and treatment. Journal of thoracic disease, 2014; 6 Suppl 3: S289-97.
25. Alazzeh, A. Y.; Azzeh, F. S., Active lifestyle patterns reduce the risk of colorectal cancer in the Mecca region, Saudi Arabia: a case-control study. European journal of cancer prevention: the official journal of the European Cancer Prevention Organisation (ECP) 2017.
26. Bowser, D.; Marqusee, H.; El Koussa, M.; Atun, R., Health system barriers and enablers to early access to breast cancer screening, detection and diagnosis: a global analysis applied to the MENA region. Public health, 2017; 152: 58-74.
27. Al-Wassia, R. K.; Farsi, N. J.; Merdad, L. A.; Hagi, S. K., Patterns, knowledge and barriers of mammography use among women in Saudi Arabia. Saudi medical journal, 2017; 38(9): 913-921.