

A Retrospective and Epidemiological Survey of Patients with Esophagus Cancer in Ilam City During a 10 Years Period

Hamed Zarei

Department of Radiology Technology, Allied medical faculty, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Hamed Tavan

Background: esophagus cancer is the sixth deadly cancer among other types with high rate of death which has made it one of the common cancers. Based on what mentioned, this retrospective study was designed to assess the tumor incidence rate in a 10 years period in Ilam city.

Materials and methods: this is a retrospective study during 1385 till 1394 in Ilam city. Our source of patients was the afflicted patients. The sample size and the statistical society of research were determined based on census. The research materials included of two types first included the demographic information of patients (age, gender, tumor type, level of education, residency, smoking and lipid profile) and the second part was some information about the esophagus cancer (anatomical site, pathologic findings and lipid profile).using SPSS version 19, the data was analyzed.

Results: the statistical society included 150 individuals afflicted with esophagus cancer in which the most prevalent age group was men older than 70 years (31.3%). In terms of anatomical site, the middle third of esophagus had 75 cases (50%), the last third had 45 cases (30%) and the first third had 30 (20%) individuals. Furthermore, as time went on, the number of new cases increased.

Conclusion: the risk factors for occurring the cancer were the age group greater than 70 years, being male, lower educational situation, unemployment, living in an urban areas, smoking, hereditary, hyperlipidemia (LDL, TG, CHOL) and finding tumor in middle third of esophagus (because of existing helicobacter pylori virus and impropriate diet). Being able to identify endangered people, one could begin treating patients and thereby, saving time, cost and increasing the rate of survivors.

Introduction

The esophagus cancer (EC) is known as one of most prevalent cancers which accounts for 10 percent of all tumor types [1]. Every year, there are so many new cases which this rate goes for 65000 cases in Iran [2,3]. There are two types of EC including squamous cell carcinoma (SCC) and adenocarcinoma (AC) which both of them are deadly and the overall survival among Iranians are lesser than 5 years [4,5]. Based on researches, among 35000 death related to all types of cancers in Iran, the esophageal -related deaths account for 5800 individuals which has given the second level of highest deaths to Iran in Asia [6,7]. Different studies around the world have sorted three categories in this region namely high risk areas, median risk areas and low risk areas from which Iran is placed in middle range while Ardabil and Golestan are high risk regions [8,9]. Data on incidence of adenocarcinoma in Iran have shown that this rate is increasing which is higher than SCC based on some excuses such as improving society hygiene, cultural, economic and social improvements [10,11]. The main causes of SCC are smoking, alcohol, fruit -free diet and poor socioeconomic situation and in terms of human related factors, one could mention being a male and black skin [12,13]. On other side, severe decreasing of serum pepsinogen (atrophic gastric), helicobacter pylori (HPV) infection of stomach and weekly symptoms of reflux and smoking have

proposed as AD risk factors [14,15]. There are other risk factors effective on out breaking of esophagus cancer like using opium, hot tea, malnutrition, poor fruit and vegetable diet, viruses, lacking of healthy drinkable water, poor moth and tooth hygiene and genetic factors [16,17]. The main symptoms of being afflicted with this type of cancer are dysphagia and weight loss. Moreover, feeling pain while swallowing, voice harshness, bulky lymph nodes, identifying nodules around clavicular bone, dry cough and bloody vomiting are other risk factors have been explored [1]. During endoscopy, the biopsy would carry as prognostic method. To prevent this type of cancer, quitting smoking and using suitable diet have been suggested. Regarding stage, tumor site and general situation of patients, the suitable medication will be used for. For localized and small SCC tumors, using surgery and best supportive care methods seem to be enough. In other situation, chemotherapy in combination with radiotherapy are other modalities alongside with surgery. The growth of bulky tumors may reduce using radiotherapy together with surgery. On conditions that doing surgery is life threatening or tumor has enlarged so much, palliative remedies would be our alternative. Outcome of this situation, when the diagnose time was late, are spreading the tumor and other medical situations, but this is an unusual. The five year survival rate ranges from 13% till 18% [5,10].

The Ilam city is placed in west of Iran in which esophagus incidence rate is categorized as high level areas. Given the necessity, researchers decided to do an epidemiologic and retrospective survey on onset of this type of cancer during the last decade, from 1385 to 1394.

Materials and Methods

This is a retrospective study during 1385 till 1394 in Ilam city. Our source of patients was the afflicted patients. The sample size and the statistical society of research were determined based on census. Data collected as perusing patients' profiles referred to Shahid Mostafa Khomeini hospital and some pathologic laboratories as detected patients. According to a checklist provided by researchers in which demographic data (age, gender, tumor type, level of education, residency, smoking and lipid profile) and some information about the esophagus cancer (anatomical site, pathologic findings and lipid profile) were used to compile patients' data. Then after, all the compiled data was introduced to SPSS version 19 software to analyze the data. Using descriptive statistics (frequency, mean and standard deviation) and inferential statistics (ONE WAY ANOVA, K-SCORE), the collected data were analyzed. Values lesser than 0.05 were considered as significant level (p value <0.05). In all steps, the Helsinki rule was considered and there was no charge for patients.

Results

The statistical society contained 150 participants detected with esophagus cancer in a decade interval from 1385 till 1394. The 70 years group had the greater number of patients (31.3%) in which the men had higher share Tabl 1. In terms of anatomical site, the middle third of esophagus had 75 cases (50%), the last third had 45 cases (30%) and the first third had 30 (20%) individuals.

Variables	Subgroups	Frequency	percentage
	40-30	22	14/7
	50-41	6	4
	60-51	37	24/7
	61-70	38	25/3
	70<	47	31/3
	Male	86	57/3

	Female	64	42/7
	Elementary school	35	23/3
	Middle school	48	32
	Diploma	60	40
	University	7	4/7
Career	Governmental	8	5/3
	Self- employed	25	16/7
	unemployed	75	50
	House keeper	42	28
Residency area	Urban	80	53/4
	Rural	70	46/6
Smoking	Yes	77	51/3
	No	73	48/7
Family history	Yes	110	73/4
	No	40	26/6

Table 1. Distribution of demographic data related to patients

In (Fig 1), the frequency of esophagus cancer in Ilam city in time span of 10 years has shown a rising of new cases as the time goes on, in which, however, the higher and lesser frequency have documented in 1394 and 1385, respectively. In (Fig. 2), the frequency of incidence rate based on shires that ilam had highest (21%) and Chardavol had lowest rate (8%).

Figure 1. :The frequency of esophagus cancer in Ilam city in time span of 10 years has shown a rising of new cases as the time goes on, in which, however, the higher and lesser frequency have documented in 1394 and 1385, respectively.

In Tabl 2, the mean of lipid profile (LDL, TG, and CHOL) together with details has prepared. The frequency of esophagus cancer regarding to demographic variables showed that elder patients with 70 years had a highest outbreak level which was statistically significant (p=0.00) and also with increasing the age, the chance of being afflicted will grow.

Profile	Number	Mean (mg/dl)	Standard deviation
HDL	150	54/42	11/61
LDL	150	105/71	35/42
TG	150	141/32	81/3
Chol	150	173/4	39/27

Table 2. The mean of patients' lipid profile

The rate of cancer affliction was higher inn men than women but was not meaningful (p=0.10). There was meaningful relation among residency area, smoking and family history of having cancer (p= 0.01, 0.02, 0.03 respectively) which people living in urban area, smokers and having a previous history had a higher chance.

Figure 2. . The frequency of incidence rate based on shires that Ilam has highest (21%) and Chardavol has lowest rate (8%).

Discussion

Nowadays, the esophagus cancer is one of common cancer types globally which is also the sixth factor of cancer related deaths. Based on results from this study; the most general age group for having this type of cancer is people who are older than 70 years. The 41 to 50 was a lowest group in terms of incidence rate which results in the higher the age, the higher the chance of affliction. There are some similar studies both inside and outside of Iran deducting that aging may be a risk factor for esophagus cancer because of poor diet and lacking of drinkable water [1,17]. Data explored from this study show that men are more in danger of getting sick which means gender is another risk factor, similar to previous analogous studies. So, based on what discussed above, men have more numbers of illness related to having full of stress careers, poor diet, more responsibilities in men and more [4,7]. Education as another risk factor has its impact on incidence rate which people with diploma and with academic literacy had lower and higher rate of illness respectively. That shows that literacy may prevent people from getting sick or prevent to be exposed to risk factors which are similar to analogous studies [8,10]. Based on data in terms of job, unemployed people had a higher risk of getting cancer resulted from the stress of finding new job and their future led to over secretion of gastric acids and bad nutrition habits to appearance tumors in stomach [11,12]. One could conclude that having job is important factor. Data from occupancy situation imply that living in cities because of poor dietary regimen, more stress and harmful jobs would lead to increase the rate on cancer [13,14]. It seems that dwelling area is an important factor which needs more investigation about. As data derived from smoking have shown the higher level of incidence rate, one could conclude that so much carcinogens existing in cigarettes have been responsible for this outcome [15,16]. People with previous occurrence in close members of their families are the susceptible group which had the most incidence rate, so, as other similar studies have proved this matter, history is another determining factor [17,18]. As the time went on, it seemed that the number of new cases grew 7 to 10 times in recent years which may be because of underestimating the illness and its risk factors by people. The results of other studies show that this trend has been increasing since last decade because the nutrition and diseases were prevalent which is in a good accompany with this study [1,19]. In terms of anatomical site, the middle third of esophagus had 75 cases (50%), the last third had 45 cases (30%) and the first third had 30 (20%) individuals which means as the rate of tumors in middle third, related to living HPV in this region of esophagus, is increasing every day, the other two sites undergo declination. These results are similar to previous studies done in this area [1]. The level of blood lipids was more than normal limitation, 2 or 3 times in some patients, which implies on the effect of these lipids on appearance of esophagus cancer. Some researchers believe that poor nutrition habits are in charge of enhancing tumor bearing patients [20].

In Conclusion, retrospective studies will be designed to ascertain important risk factors of any illness which similarly in this study some of them, responsible for out breaking esophagus cancer during last decade from 1385 until 1394, were scrutinized. Age group of 70 years old, being a male, low educational situation, unemployment, living in urban areas, smoking, hereditary, hyperlipidemia and tumor site (middle third of esophagus) were our investigated factors.

Study restrictions

Each retrospective study has its limitations such as having reach to merely documented patients who referred to our hospital which means there may be more patients out there. Limited access to some patients and lacking some specific medical tests brought about lesser information about complete procedures of treatment which led to killing the useful data to explore survival time and management of patients.

Suggestions

Because of finding risk factors, it is a suitable time to have screening in terms of finding unknown probable factors to do primary and secondary prevention during treatment course and primary diagnosis of illness as well. Early detection and thereby, having sooner diagnosis and lower costs

are other benefits. As it was mentioned earlier, family history is an effective risk factor which could be a good marker to screen the family members. Treating families for suitable foods and waters and letting them know more about their risk factors is completely recommended.

Clinical application

Being able to identify endangered people, one could begin treating patients and thereby, saving time, cost and increasing the rate of survivors.

Acknowledgments

This study has legislated by Ilam University of Medical sciences. Special thanks to deputy of research because of economic supports and to cancer documenting center, to executive, conservative and archive of Shahid Mostafa Khomeini hospital for collecting data and to all whom helped us doing this study.

References

- [1]. Malekzadeh R, Semnani Sh, Sadjadi AR. Esophageal Cancer in Iran A Review. *Journal of Govaresh*, 2008. 13(1):25-34.
- [2]. Samadi F, Babaei M, Yazdanbod A, Fallah M, Nouraie M, Nasrollahzadeh D, et al. Survival rate of gastric and esophageal cancers in Ardabil province, North-West of Iran. *Arch Iran Med* 2007; 10: 32-7.
- [3]. Sadjadi A, Malekzadeh R, Derakhshan MH, Sepehr A, Nouraie M, Sotoudeh M, et al. Cancer occurrence in Ardabil: results of a population-based cancer registry from Iran. *Int J Cancer* 2003; 107: 113-8.
- [4]. Sadjadi A, Zahedi MJ, Moghadam SD, Malekzadeh R. The first population-based cancer survey in Kerman Province of Iran. *Iranian Journal of Public Health*. 2007; 36(4): 26-34.
- [5]. Semnani S, Sadjadi A, Fahimi S, Nouraie M, Naeimi M, Kabir J, et al. Declining incidence of esophageal cancer in the Turkmen Plain, eastern part of the Caspian Littoral of Iran: a retrospective cancer surveillance. *Cancer Detect Prev* 2006; 30: 14-9.
- [6]. Kamangar F, Malekzadeh R, Dawsey SD, Saidi F. Esophageal Cancer in Northeastern Iran: A review. *Arch Iran Med* 2007; 10: 70- 82.
- [7]. Haghdoost AA, Hosseini H, Chamani G, Zarei MR, Rad M, Hashemipour M, et al. Rising incidence of adenocarcinoma of the esophagus in Kerman, Iran. *Arch Iran Med*. 2008;11(4):364-70.
- [8]. Malekzadeh R, Mohamadnejad M, Merat S, Pourshams A, Etemadi A. Obesity pandemic: an Iranian perspective. *Arch Irn Med* 2005 ;8: 45-50.
- [9]. Nasrollahzadeh D, Kamangar F, Aghcheli K, Sotoudeh M, Islami F, Abnet C, et al. Opium, tobacco, and alcohol use in relation to oesophageal squamous cell carcinoma in a high-risk area of Iran. *Br J Cancer* 2008; 98: 1857-63.
- [10]. Akbari MR, Malekzadeh R, Nasrollahzadeh D, Amanian D, Islami F, Li S, et al. Germline BRCA2 mutations and the risk of esophageal squamous cell carcinoma. *Oncogene* 2008; 27: 1290-6.
- [11]. Islami F, Nasrollahzadeh D, Kamangar F, Abnet C, Boffetta B, Dawsey SM, et al. Socioeconomic status in relation to esophageal cancer in a high-risk area of Iran.

Gastroenterology. 2008; 134(4):301-301.

[12]. Fagundes RB, Abnet CC, Strickland PT, Kamangar F, Ro9th MJ, Taylor PR, et al. Higher urine 1- hydrox-ypyrene glucoronide (1-OHPG) is associated with tobacco smoking exposure and drinking mate inhealthy subjects from Rio Grande do Sul, Brazil. *BMC Cancer* 2006; 6: 139.

[13]. Islami F, Pourshams A, Nasrollahzadeh D, Kamangar F, Fahimi S, Shakeri R, Abedi-Ardekani B, Merat S, Vahedi H, Semnani S, Abnet CC, Brennan P, Møller H, Saidi F, Dawsey SM, Malekzadeh R, Boffetta P. Tea drinking habits and oesophageal cancer in a high risk area in northern Iran: population based case-control study. *BMJ*. 2009; 26(338):b929.

[14]. Gonzalez CA, Pera G, Agudo A, Bueno- de- Mesquita HB, Ceroti M, Boeing H, et al. Fruit and vegetable intake and the risk of stomach and esophagus adenocarcinoma in the European Prospective Investigation into Cancer and Nutrition(EPIC-EURGAST). *Int J Cancer* 2006; 118: 2559-66.

[15]. Sadjadi AR, Marjani H, Semnani Sh, S Nasser-Moghaddam. Esophageal Cancer in Iran: A Review. *Middle East J Cance*. 2010; 1(1): 5-14.

[16]. Aghcheli K, Marjani HA, Nasrollahzadeh d, Islami F, Shakeri R, Sotoudeh M, et al. Prognostic factors for esophageal squamous cell carcinoma--a population-based study in Golestan Province, Iran, a high incidence area. *PloS One* 2011;6:e22152. doi: 10.1371/journal.pone.0022152

[17]. Jemal A, Siegel R, Xu J, Ward E. Cancer statistics, 2010. *CA Cancer J Clin* 2010;60:277-300. doi: 10.3322/caac.20073

[18]. Jemal A, Center MM, DeSantis C, Ward EM. Global patterns of cancer incidence and mortality rates and trends. *Cancer Epidemiol Biomarkers Prev*. 2010;19(8):1893-907.

[19]. Roshandel G, Sadjadi A, Aarabi M, Keshtkar A, Sedaghat SM, Nouraie SM, et al. Cancer incidence in Golestan Province: report of an ongoing population-based cancer registry in Iran between 2004 and 2008. *Arch Iran Med* 2012;15:196-200. doi: 012154/AIM.004

[20]. dar NA, Shah IA, Bhat GA, Makhdoomi MA, Iqbal B, Rafiq R, et al. Socioeconomic status and esophageal squamous cell carcinoma risk in Kashmir, India. *Cancer Sci* 2013;104:1231-6. doi: 10.1111/cas.12210

References