Treatment delay among oral cancer patients in Tehran, Iran

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ARTICLE INFO	ABSTRACT
	Introduction: Despite recent advances in treatment of oral cancer, it still causes high rates of mortality and morbidity worldwide. Delays in diagnosis and treatment of these cancers greatly affect the prognosis. This study aimed to assess the treatment delay and its relation to diagnostic delay among oral cancer patients in Tehran, Iran. **Materials and Methods**: We studied 100 patients with primary oral squamous cell carcinoma who were admitted to three teaching hospitals between 2004 and 2006. Treatment delay was defined as the time from diagnosis to the beginning of treatment. Diagnostic delay is considered as the time elapsed between the onset of symptoms and diagnosis. **Results**: Of all the patients 53% were male with the mean age of 61.5 (SD 15.8 years; range 24-100 years) at diagnosis. The majority of tumors (61%) were at advanced stages when diagnosed (stages III or IV). The mean diagnostic delay was 7.2 months (SD 7.5) and the mean treatment delay was 33.16 days (SD 14.1). Patients who were diagnosed at earlier stages had longer treatment delays ($p<0.05$), and those who had longer diagnostic delay had shorter treatment delay ($p<0.05$). **Conclusions**: Our findings indicated a need for oral cancer prevention campaigns, focused on reducing the delays between the appearance of signs and symptoms, and final diagnosis and treatment to ensure better prognosis and higher quality of life for patients. **Keywords**: Diagnostic delay, Iran, Oral cancer, Treatment delay.

Introduction

The incidence rate of oral cancers is around 4 per 100,000 of population worldwide. When combined with lip cancers, they are among the ten most common cancers in males and the most common cancers in southeastern Asia [1]. Despite technological advances in treatment and diagnostic methods, oral cancer is usually considered to cause high mortality and morbidity rates, especially in developing countries [2].

Different factors related to the prognosis of oral cancer patients are mainly including: stage tumor size, nodal involvement and metastasis (TNM), histological grade of tumor, primary tumor site, early or late diagnosis and treatment, and method of treatment [3]. To increase patients' survival and quality of life, effort should be on the shortening of the diagnostic delay and times elapsed between diagnosis and treatment to suppress possible tumor progression [4].

Cancer is the second most common cause of death and oral and pharyngeal cancers account for 3% of all cancers in Iran [5,6]. Prolonged diagnostic time may be one of the causes of decreased (less than 50%) five-year-survival of oral cancer patients in Iran [7,8]. Basic but important questions remain unanswered regarding oral cancer diagnosis and treatment and the reasons to lower survival rate of patients in our country. This study aimed to investigate treatment delay and the related factors among oral cancer patients admitted to Iran Cancer Institute, which is known to be the best for cancer comprehensive treatment and care in whole country.

Materials and Methods

The study population was 100 consecutive patients with primary oral squamous cell carcinoma (ICD-10 sites C01–C06) referred to three teaching hospitals in Tehran, Iran, between 2004 and 2006 [9]. Some patients (n = 4) did not accept to sign the patient informed consent form for participation in the study.

Data were obtained through structured interviews by a questionnaire including: gender, age, date of onset of symptoms, date of diagnosis and the date of the beginning of the first treatment, primary tumor site, and TNM stage of the tumor at the time of diagnosis [10]. Medical records of all the patients were also reviewed. Interviews were performed prior to cancer treatment.

Diagnostic delay was defined as the period from the onset of symptoms to the final diagnosis of oral cancer and the treatment delay was the time elapsed between diagnosis and the first treatment round [11]. To reduce recall bias, if a patient was unable to remember the exact date of onset of symptoms, but remembered only the month or the season, then the median date was chosen. All other patients' responses were validated by checking them with their hospital medical records, physician or dentist. The relationship between mean delays and other variables were examined by t-test and ANOVA. Associations were considered significant when $p < 0.05$.

The Ethics Committee of the School of Dentistry, Shaheed Beheshti Medical University, approved the study protocol.

Results

Of all the patients 47% were female, with the mean age of 61.5 (SD 15.8, range 24- 100) at the time of final diagnosis. Tumor site distribution was 60%, 11% and 29% for C01-C02 (tongue), C03-C04 (gingival mucosa and floor of the mouth) and C05-C06 (buccal mucosa), respectively. Of all the tumors 39% were at early stages (stages I and II) at the time of diagnosis (Table 1).

The time between the presence (patient being aware) of signs and symptoms and the final diagnosis (diagnostic delay) was 7.2 months (SD 7.5, range 1-36 months). No difference was observed in diagnostic delay by age, gender and smoking history. Those patients who were diagnosed with advanced tumor stages had longer diagnostic delay ($p < 0.05$) (Table 1).

The mean treatment delay, which was defined as the lag period between diagnosis and the beginning of the first round of treatment, was 33.16 days (SD 14.1, range 7- 60 days), with no age and gender difference. In the majority (92%) of the patients the first treatment was surgery, for the remaining chemotherapy and/or radiotherapy was performed presurgically. Patients who were diagnosed with advanced tumors (stages III or IV) had shorter treatment delays ($p < 0.05$). Patients with longer diagnostic delay had shorter treatment delays ($p < 0.05$) (Table 2).

Discussion

Different factors contribute to lower survival rate of oral cancer patients, despite technological and scientific advances in diagnosis and treatment. According to the study results by Stefanuto, diagnostic delay is the most important factor which extends the total time spans to treatment of oral cancer patients.

Table 1. Diagnostic delay (months) in oral cancer patients (n=100) by age, gender, primary tumor site and stage of tumor at diagnosis

	N	Mean (months)	SD	p
Gender				
Female	47	8.5	4.9	.05
male	53	5.6	9.0	
Age group				
< = 64	50	6.2	6.9	.22
>64	50	8.1	8.0	
Primary tumor site				
C01-C02	60	6.6	6.8	.38
C03-C06	40	8.0	8.4	
Stage				
I & II	39	4.2	6.7	.00*
III & IV	61	9.0	7.4	

* $p < 0.05$

Table 2. Treatment and diagnostic delay (days) in oral cancer patients (n=100) by age, gender, primary tumor site and stage of tumor at diagnosis

	N	Mean (months)	SD	p
Gender				
Female	47	33.0	12.1	.91
male	53	33.3	15.7	
Age group				
< = 64	50	33.8	15.2	.63
>64	50	32.4	13.0	
Primary tumor site				
C01-C02	60	34.0	14.6	.46
C03-C06	40	31.8	13.3	
Stage				
I & II	39	37.0	11.5	.02*
III & IV	61	30.6	15.0	
Diagnostic delay				
≤ 3 months	47	41.9	11.0	.00*
> 3 months	53	25.3	11.8	

* $p < 0.05$

This may subsequently contribute to the later progression of tumor stage at the time of treatment and thus, the lower survival [12].

The mean time from onset of symptoms to the final diagnosis, or the diagnostic delay, was 7.2 months in this study. This delay is higher than what reported in many studies [13-19], may be due in part to patient related reasons such as: lack of or insufficient knowledge about oral cancer symptoms, the lesion not considered as an important health-threatening issue, fear of malignancy, the anxiety surrounding the finding of the first symptoms and symptom denial [20]. Other reasons may relate to the health professionals involved in the diagnostic process such as scheduling delay, delay in referral, and incorrect diagnosis [21-23].

The mean treatment delay was 33.16 days in our study. Peacock and Abdo reported longer treatment delays, whereas Rogers reported shorter durations [14, 24-25]. Different factors related to the delay in treatment, were including: access to health care facilities, patient socio-economic status, scheduling delays, referral system, and misdiagnosis [21, 25-28].

In the study, we found no difference in treatment delay by age and gender. This is in line with Rogers' 2007 [25]. Patients with advanced-stage tumors had a shorter treatment delay at the time of diagnosis. This shows that both patient and specialist found the situation life threatening and were aware of the need for prompt action.

We found that those patients whose tumors were diagnosed earlier, were more delayed in receiving required treatment. This finding is similar to Rogers' 2007 [25], and depicts that those patients may not have enough knowledge on the necessity of early treatment, or may consult several professionals with different specialties without a real need. Thus, whatever it may be, the consequence is tumor progression in size, and nodal involvement and metastasis. At last, survival rate and quality of life as well as clinical management and costs will be extremely inversely affected.

Early diagnosis and treatment of oral cancers are both important considering both mortality and morbidity. Cancerous lesions diagnosed at their early stages i.e. when they are small with no evident nodal involvement or metastasis, are less likely to have recurrences. Treatment of these lesions is less complicated and cause significantly reduced configuration and comorbidity.

Conclusion

Our findings indicated a need for oral cancer prevention campaigns, focused on reducing the delays between the appearance of signs and symptoms, final diagnosis and treatment, to ensure better prognosis and higher quality of life for patients.

Conflict of interest: *The authors declared no conflict of interest.*

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