

Patient Delay Vs Professional Delay For Delay In Diagnosis In Oral Cancer- Systematic Review

Review Article

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Abstract

Oral carcinomas are one of the most common cancers across the world with a high mortality rate. Delayed diagnosis is one of the main concern that hampers the success of the treatment. The delay can be summarised as Patient delay and Professional delay. A review was undertaken to understand various reasons for delay in the diagnosis of oral cancer and also to find out which factors are responsible for the delay. Studies that compared patient delay factors and professional factors are included in the review.

Objective: To assess the reason for delay in the diagnosis of oral cancer and which among patient delay or professional delay is responsible for delayed diagnosis of oral cancer.

Eligibility criteria: Studies including delay in diagnosis of oral cancer across the world due to patient and professional factors, studies published in English language and studies published from January 2008 to December 2018.

Data source: Electronic data search of Pub Med, Google Scholar, HINARI, IndMed, EBSCO Host, Institutional Library and manual search of various journals. Two reviewers independently extracted the data. Any disagreement was sorted by consensus with the third author.

Results: Four studies were selected for the review. One of the main reasons for patient delay was a financial barrier and for professional delay it was referring to the specialist. Two studies attributed the delay due to patient and the other two studies due to professional reasons.

Conclusion: There is no clear-cut answer in order to contribute the delay to the patient or professional. Limited heterogeneous studies, makes it difficult to arrive at a conclusion.

Keywords: Oral Cancer; Delay In Diagnosis; Professional Delay; Patient Delay.

Introduction

The International Agency for Research on Cancer (IARC) had released GLOBOCAN in 2008 and found out that oral cancers take the place of fifth most common occurring malignancies around the world [1].

Survival rates are considerably low in developing countries. The 5-year survival of oral cancer was estimated to be about 30.5% in India [2]. This can be attributed to the delay in diagnosis. It can be either due to the patient delay or professional delay. Patient

delay can be defined as time interval from the start of signs and symptoms to the visit to the doctor ; whereas professional delay is from the start of the investigation to initiate a treatment [2]. Patient delay can also be defined as the length of time from which the patient first became aware of symptoms to his or her first visit to a primary care clinician [2]. Professional delay can also be defined as duration of initiation of investigation of the cancer related symptoms by a physician to initiation of treatment [3]. Multiple factors are relatable to the patient delay, such as - lack of knowledge, poor socio-economic status and negligence towards health. Professional delay includes mostly lack of available facili-

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Received: November 10, 2020

Accepted: April 02, 2021

Published: April 05, 2021

Citation: Monica Gajul, Kalyani Bhate, Sayali Awate, Pradnya Kakodkar, Sonal Shah. Patient Delay Vs Professional Delay For Delay In Diagnosis In Oral Cancer- Systematic Review. *Int J Dentistry Oral Sci.* 2021;08(04):2200-2204. doi: <http://dx.doi.org/10.19070/2377-8075-21000435>

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ties and lack of awareness among general practitioners [2].

Early detection of the disease plays an important role in the prognosis as well as survival rate of the patient. Delay in diagnosis leads to delay in treatment and thus increased risk of metastatic spread and ultimately a poor outcome. About 30% of patients usually wait for more than 3 months before consulting a medical/dental professional after self-discovery of signs and symptoms of oral cancer [3]. Moreover, this delay can be due to the difficulty experienced by the patients in perceiving such signs and symptoms.

The various reasons for patient delay and professional delay are not well documented. Also, it is still not clear whether patient delay or professional delay is main reason for delay in diagnosis. Hence, this systematic review was undertaken to understand various reasons of delay in the diagnosis of oral cancer and also to find out which among patient delay or professional delay is responsible for delay in diagnosis in oral cancer.

Material and Methods

This review is carried out in accordance with Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) to answer the following focussed question: What are the reasons for delay in the diagnosis of oral cancer and which among patient delay or professional delay is responsible for delay in diagnosis in oral cancer?

Search strategy

A comprehensive search of literature was undertaken. A date restriction from January 2008 to December 2018 and a language restriction of English were put while undertaking the electronic search. The electronic search includes PubMed, Google Search, Hinari, Indmed, EBSCO Host and Institutional Library. In addition, bibliographies of included studies were hand searched to identify potentially eligible studies that were not captured by the electronic search. Email communication to authors of potential eligible studies was also done.

In addition, a manual search was carried out in Journals of Cancer Epidemiology, Journal of American Dental Association, Clinical Oncology, Indian Journal of Cancer, Clinical Otolaryngology, British Dental Journal, Oral Oncology, Indian Journal of Surgical Oncology, International Journal of Oral Science, British Journal of Cancer and Head and Neck.

Reference list of identified studies on the subject were also scanned for possible additional studies. Keywords used for database search were: Oral cancer, Delay in diagnosis, Professional delay and Patient delay. Using synonyms of the keywords, various search strategies were made. (Table 1)

Eligibility criteria

All the articles were included which detailed factors responsible for delay in diagnosis of oral cancer across the world due to patient and professional factors; studies published in English language and studies published from January 2008 to December 2018. Review articles, invited review, abstracts, letters to editors

and editorials were excluded.

Study selection

All the studies were independently screened by two reviewers (MG & SA). At first the title and abstracts were screened. The second step included obtaining full text of studies that fulfilled the eligibility criteria. Any disagreement between the reviewers was resolved after discussion. All the selected data was individually checked by KB. After this, a data extraction sheet was prepared. (Table 2)

Data extraction

Two investigators independently abstracted the following data from the articles included and recorded it using a piloted form. The following information was extracted: Author name, Year of Publication, Location, Number of participants included in the study, time for patient delay, reasons for the patient delay, time for professional delay and reasons for professional delay. Any disagreement or ambiguity was resolved by discussion with the expert (PK).

Results and Discussions

This systematic review followed guidelines in PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) statement.

A preliminary screening yielded 206 studies from database sources and 8 from additional sources. After duplicate removal, 186 titles were screened. 8 studies were assessed as full texts and 4 articles were excluded for not fulfilling eligibility criteria. Finally, 4 studies were selected for the review. (Figure 1)

Study Characteristics and characteristics of trial settings

The four studies included in the review are all prospective studies. The study location was San Francisco (U.S.A), Australia, Mumbai (India) and Cuttack (India) [3-6].

Characteristics of Participants

A total of 479 participants were included from 4 studies. The age of the participants ranged from 30 to 60 years and included both genders. All the patients were diagnosed and treated for oral squamous cell carcinoma. The data was collected using questionnaire.

Time interval of patient delay

Peacock ZS et al reported a mean time interval of patient delay of 104.7 days(0-730 days) [4]. Tan JY et al reported a delay of one to five months; A time interval of two months was found in the study carried out by Joshi P et al and Ratha H et al reported a delay of 4 to 500 days(with a median of 30 days)[3, 5, 6].

Reasons of patient delay

The main reasons for delay listed by Zachary P et al are financial barrier [4]. Tann JY et al had come across reasons such as low income and low education level [5]. Joshi P et al found out that

Figure 1. PRISMA Flow chart.

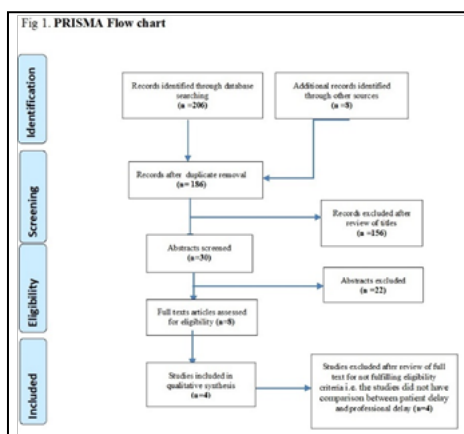


Table 1. Search Strategy.

Sr.no	Search strategy	Articles found	Articles selected	Duplicate articles	Animal study
1	squamous cell carcinoma AND Diagnostic delay AND Health care professional AND initial delay	0			
2	oral malignancy AND Delayed diagnosis AND tertiary level delay AND Patient delay	0			
3	ulcero-proliferative growth AND stage of oral cancer AND health care delay AND public awareness	1	0	-	
4	Oral cancer AND health care professionals AND early diagnosis AND public awareness	2	0	0	
5	Oral cancer AND delay in diagnosis AND professional delay AND Patient delay	73	4		
6	Oral squamous cell carcinoma AND Diagnostic delay	28	4	4	
	TOTAL	104	8	4	
	Articles after removing duplicates and animal studies		4		

Table 2. Data Extraction Sheet.

Author name	Location	Number of participants	Number of days of delay and Patient reason of delay	Number of days of delay and reason for professional delay
Peacock ZS et al 2008	San Francisco	50	n= 104.7 Days (mean time 0-730) Financial Barrier n= 1 -5 months.	n=17.7 days Delay in referral to a specialist
Tan JA et al 2014	Australia	158	Low Income and low education level	n=3 to 21 weeks . Delay In referral , patients failing to attend appointments and delay in surgery
Joshi P et al 2014	India	201	n= 2 months. Absence of pain,lack of awareness and no access to medical care	n= 3 months. Lack of awareness among GP'S; Lack of other facilities like medicine,surgical instruments&trained pathologist etc; Significant amount of time delay in getting correct diagnosis
Rath H et al 2018	India	70	n= 4 to 500 days (Median of 30 days). aimless nature of symptom(10%) Waited for symptoms to subside on own (90%) Ignorance of oral cancer(20%) Hiding symptoms(1.45%) Distance from health care system(92.8%) Perception on health care system(7.4%) Finance (55%) lack of perception of seriousness (65%).	n= 4 to 930 days (median of 40 days) Lack of facilities regarding radiotherapy and chemotherapy(74.2%) Improper referral (28.5%) Misdiagnosis(44.2%)

absence of pain, lack of awareness and access to medical care are mostly accountable factors [6]. Ratha H et al noted painless nature of symptom (10%), waited for symptoms to subside on own (90%), ignorance of oral cancer (20%), hiding symptoms (1.45%), distance from health care system, perception on health care system (7.4%), finance (55%) and lack of perception of seriousness (65%) [3].

Time interval for professional delay

The time interval for professional delay ranged from 17.7 days, 3 to 21 weeks, 3 months and 4 to 930 days with a median of 40 days [3-6].

Characteristics of reasons for professional delay

Zachary P et al came across that delay in referral to a specialist was a major factor which contributed for the professional delay [4]. Tan JY et al have also concluded that delay in referral, patients failing to attend appointments and delay in surgery contributed for the professional delay [5]. Joshi P et al had stated that lack of awareness among general practitioners, lack of other facilities like medicine, surgical instruments & trained pathologists and significant amount of time delay in getting correct diagnosis were the causes pertaining to professional delay [6]. Ratha H et al found out the professional delay mainly was due to lack of facilities regarding radiotherapy and chemotherapy (74.2%), improper referral (28.5%) and misdiagnosis (44.2%) [3].

Characteristics of patient delay versus professional delay

Peacock ZS et al and Tan JA et al concluded that patient delay factors contributed to a higher percentage than the professional delay factors, whereas Joshi P et al and Rath H et al concluded that the professional delay factors contributed more than the patient delay factors [3-6].

Discussion

Malignant neoplasms are a major cause of fear, morbidity and mortality all over the world [2]. Cancer is one of the five main causes of death in all societies. Oral squamous cell carcinoma also known as oral cancer is the third largest cause of death across the world. Early diagnosis and prompt treatment are imperative in the success of the oral cancer. Delay in diagnosis is one of the important factors which determines the success of oral cancer treatment [7].

Different studies have been conducted to study the delay in diagnosis of oral cancer and factors pertaining to it. During the 1970s the prognostic relevance of the time lapse in diagnosis of oral cancer was emphasized and two factors were considered (i) the time that elapses from first symptom until the patient consults a physician or a dentist and (ii) the period during which the patient is under professional care until a diagnosis is made [5]. These factors are nowadays categorised as (i) patient delay and (ii) professional delay [8].

There are many questions that come up as to why there is delay in diagnosis of oral cancer in spite of it being the most accessible part of the body compared to others [9]. And what factors account majorly for the delay in diagnosis and eventually the

reduced survival rate. One of the major factors that affects the prognosis is the stage at which the patient presents to the health care professional and the stage at which the treatment has been initiated [10, 11].

In the present review, the oral cancer reported was squamous cell carcinoma. The most common reasons for patient delay was financial barrier. Aid from government or private philanthropist can help to overcome this reason for delay in diagnosis. Failure to recognise the severity of symptoms, which is mainly related to lack of knowledge was also an important reason for patient delay [12]. This can be minimised by conducting screening and awareness programmes at district level and also increasing government sponsored treatment facilities.

The most common reason for professional delay was delay in referral. The general practitioners or the dentist often delay in referring to a specialist by symptomatic treatment to the patient. This delay can be avoided by increasing the Continuing Education programmes amongst practitioners, Knowledge and training of the primary health care physician is of utmost importance of oral cancer. Many studies have noted similar findings [6, 13-15]. It is of utmost importance that the diagnostic and treatment facility for oral cancer should be available at district level [13].

Two out of four studies concluded that professional delay contributed more to delay in diagnosis of oral cancer than patient delay. Late diagnosis with resultant poor prognosis is the reason for increased morbidity and also mortality in oral cancer. However, a review by Stefanuto P et al indicated that patient delay is one of the main reasons for delay in diagnosis for oral cancer [15]. They also suggested that early diagnosis can be achieved by screening of asymptomatic patients.

Limitations

Though the delay in oral cancer is a concern for both the patient and treating doctor, the number of studies that enlist the reasons for patient delay as well as professional delay are limited. Furthermore, the studies that compare patient delay and professional delay are few. So, even though there is data which highlights individual factor like patient delay and professional delay in the article, the combined effect is studied in only four studies.

Conclusion

There is no clear-cut answer as to contribute the delay to the patient or professional. The studies are limited and the heterogeneity of the studies makes it difficult to arrive at a conclusion. However, it is mandatory that steps should be taken to educate both the patient and the professional towards oral cancer.

Future Implications

The findings of this review can be used as a base to improve health care facility and expedite the diagnosis of oral cancer. The knowledge of this review should be used to develop a targeted intervention to minimise delay in oral cancer treatment. Since, financial barrier is the main contributory factor to patient delay all over the world, schemes and policies should be designed by the governments to provide free treatment for oral cancer at the

district level. Increased screening and awareness programmes at all levels will aid in early diagnosis. patients should be trained for self-examination of oral cavity and programmes to train patients of the self-examination should be carried out. The general practitioners should be trained for early detection, biopsy taking and early referral of oral cancer. Continuing Education Programmes with focus on early detection of oral cancer will help to achieve this.

Acknowledgement

I wish to acknowledge to all my colleagues and staff of the Oral & Maxillofacial Surgery Department.

References

- [1]. Sharma RG, Bang B, Verma H, Mehta JM. Profile of oral squamous cell cancer in a tertiary level medical college hospital: a 10 yr study. *Indian journal of surgical oncology*. 2012 Sep 1;3(3):250-4. PubmedPMID: 23997517.
- [2]. Esmaelbeigi F, Hadji M, Harirchi I, Omranipour R, vandRajabpour M, Zendehtdel K. Factors affecting professional delay in diagnosis and treatment of oral cancer in Iran. *Arch Iran Med*. 2014 Apr;17(4):253-7. Pubmed PMID: 24724601.
- [3]. Rath H, Shah S, Sharma G, Mishra E. Exploring determinants of care-seeking behaviour of oral cancer patients in India: A qualitative content analysis. *Cancer epidemiology*. 2018 Apr 1;53:141-8. PubmedPMID: 29438925.
- [4]. Peacock ZS, Pogrel MA, Schmidt BL. Exploring the reasons for delay in treatment of oral cancer. *J Am Dent Assoc*. 2008 Oct;139(10):1346-52. PubmedPMID: 18832270.
- [5]. Tan JA, Otty ZA, Vangaveti VN, Buttner P, Varma SC, Joshi AJ, et al. A prospective comparison of times to presentation and treatment of regional and remote head and neck patients in North Queensland, Australia. *Internal medicine journal*. 2016 Aug;46(8):917-24. PubmedPMID:27246246.
- [6]. Joshi P, Nair S, Chaturvedi P, Nair D, Agarwal JP, D'Cruz AK. Delay in seeking specialized care for oral cancers: Experience from a tertiary cancer center. *Indian J Cancer*. 2014 Apr 1;51(2):95. Pubmed PMID: 25104185.
- [7]. Jafari A, Najafi SH, Moradi F, Kharazifard MJ, Khami MR. Delay in the diagnosis and treatment of oral cancer. *J Dent (Shiraz)*. 2013 Sep;14(3):146-50. Pubmed PMID: 24724136.
- [8]. Kerdpon D, Sriplung H. Factors related to advanced stage oral squamous cell carcinoma in southern Thailand. *Oral Oncol*. 2001 Apr;37(3):216-21. Pubmed PMID: 11287274.
- [9]. Guggenheimer J, Verbin RS, Johnson JT, Horkowitz CA, Myers EN. Factors delaying the diagnosis of oral and oropharyngeal carcinomas. *Cancer*. 1989 Aug 15;64(4):932-5. PubmedPMID: 2743284.
- [10]. McGurk M, Chan C, Jones J, O'regan E, Sherriff M. Delay in diagnosis and its effect on outcome in head and neck cancer. *Br J Oral Maxillofac Surg*. 2005 Aug;43(4):281-4. Pubmed PMID: 15993279.
- [11]. Mathew A, George PS, Ramadas K, Mathew BS, Kumar A, Roshni S, Jayakumar KNL, Booth CM. Sociodemographic Factors and Stage of Cancer at Diagnosis: A Population-Based Study in South India. *J Glob Oncol*. 2019 Jul;5:1-10. Pubmed PMID: 31322993.
- [12]. Panzarella V, Pizzo G, Calvino F, Compilato D, Colella G, Campisi G. Diagnostic delay in oral squamous cell carcinoma: the role of cognitive and psychological variables. *Int J Oral Sci*. 2014 Mar;6(1):39-45. PubmedPMID: 24287962.
- [13]. McLeod NM, Saeed NR, Ali EA. Oral cancer: delays in referral and diagnosis persist. *Br Dent J*. 2005 Jun 11;198(11):681-4. Pubmed PMID: 15951773.
- [14]. Teppo H, Alho OP. Relative importance of diagnostic delays in different head and neck cancers. *ClinOtolaryngol*. 2008 Aug;33(4):325-30. Pubmed PMID: 18983341.
- [15]. Stefanuto P, Doucet JC, Robertson C. Delays in treatment of oral cancer: a review of the current literature. *Oral Surg Oral Med Oral Pathol Oral Radiol*. 2014 Apr;117(4):424-9. Pubmed PMID: 24556495.