RESEARCH ARTICLE

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Early Detection of Oral Cancer- Dentists' Knowledge and Practices in the United Arab Emirates

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Abstract

Objectives: The aim of this study was to evaluate the knowledge, opinions and practices of dentists regarding early detection of oral cancer in the United Arab Emirates (UAE). **Method:** A cross-sectional study was conducted using a simple random sampling technique with a self-reported questionnaire applied to 298 dentists, working in private and public sectors in three cities (Abu Dhabi, Dubai and Sharjah) in the UAE. Dentists' knowledge about risk factors and diagnostic concepts of oral cancer, current practices and opinions as well as interest in continuing education programs were assessed. **Results:** The dentists, aged 23-65 years, were generally aware of the major risk factors most likely associated with oral cancer. Thirty percent of the participants identified the tongue as the most common site on which oral cancer develops. The best known clinical presentation of oral cancer identified by the respondents was a persistent ulcer (87.6 %). Only thirty dentists (9.9%) were comfortable in performing a biopsy in their clinic. Less than half (48.0%) had attended a continuing education course on oral cancer within the past 5 years. The majority of the participants (84.9%) felt that they needed further training on oral cancer detection. **Conclusion:** The findings of the present study identified several deficiencies in the knowledge of dentists working in the UAE with regard to early detection of oral cancer. Some changes to dental educational and training could be made to improve the confidence and ability of dentists in this regard.

Keywords: Oral Cancer- knowledge- dentists- UAE

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Introduction

Oral cancer is a major cause of morbidity and mortality worldwide. Every year, more than 275,000 new oral cancer cases are diagnosed and at least 120,000 die of the disease (Parkin et al., 2005). The oral cavity is amenable to routine screening and clinical examination for malignant changes, therefore, these changes should be more easily detected and diagnosed in the early stages leading to more effective management (Maybury et al., 2012). However, despite the easy accessibility of oral cavity for examination, oral cancer remains a highly lethal disease (Speight et al., 2010) and is one of the most debilitating and disfiguring of all malignancies (Mignogna et al., 2004).

As the majority of oral cancers are associated with lifestyle risk factors including smoking, betel quid chewing and alcohol consumption, the primary prevention for oral cancer is through health education that aims to change behavior or lifestyle that are known to be associated with oral cancer. Yet, the figures concerning the prevention and early detection of oral cancer have remained disappointingly constant over the last few decades and studies reporting the success of primary prevention are limited, underscoring the fact that changing behavior or lifestyle is a slow and difficult process. In this regard, to significantly reduce the burden of oral cancer, secondary oral cancer prevention i.e. early detection through screening is particularly important (Croucher et al., 2011). Early diagnosis and treatment minimize morbidity and mortality but most oral cancers even in developed countries are detected at late stages, resulting in a low 5-year survival rate (La Vecchia et al., 2004).

Patients with oral lesions are often first seen by general practitioners, both medical and dental. Therefore, general practitioners are in a unique position to detect oral cancer at early stages (Kujan and Sloan, 2013). Although plenty of surveys have been conducted to assess the dentists' awareness and attitude towards oral cancer (Motallebnejad and Hedayati, 2006; Saghafi et al., 2009; Mehdizadeh et al., 2014). Little is known about this issue among dentists working in United Arab Emirates (Jaber, 2011). Dentists working in UAE receive formal education and training in prevention and detection of oral cancer during their undergraduate studies in their respective dental schools. However, there are no specific courses currently available in UAE for the dentists

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working in various sectors.

Taking in consideration the finding of Anis and Gaballah (2013) study that was based on retrospective data from multi-center in which they demonstrated clearly that oral cancer is not an uncommon disease in UAE. Therefore, assessing dentists' knowledge and practices regarding oral cancer risk factors and diagnostic concepts on a "large scale" would provide baseline information that might help in future planning of undergraduate and continuing professional education programmer. This study was designed to evaluate the knowledge, opinions and practices of dentists in UAE regarding the early detection oral cancer and to explore potential educational needs, if any, in this regards.

Materials and Methods

The current study was approved by the ethics committee of Ajman University (AU). The questionnaire used in this study consists of 34 close-ended questions which contain information on the participants' characteristics such as gender, age, number of years since graduation, and highest qualification. Furthermore, information on the level of knowledge was based on the following subheadings: i) risk factors associated with oral cancer ii) oral cancer diagnostic concerts iii) participation in continuous education iv). perception of dentists on training in the area of oral cancer. The survey was developed from previously validated tools (Macpherson et al., 2003; López-Jornet et al., 2010; Decuseara et al., 2011; Joseph et al., 2011) with modifications to suit the local population, particularly in the area of risk factors associated with the disease. The questionnaire was first validated among a convenient sample (20 dentists) to ensure clarity of interpretation and ease of completion.

A total of 370 dentists (GDP and specialists) working in three cities (Abu Dhabi, Dubai and Sharjah) in both sectors (private and public) in UAE selected for inclusion in this study. At least one year of work experience in the current position was a criterion for eligibility to be included in the study. The Clinics were selected from the membership register of Ministry of Health for emirates of Abu Dhabi, Dubai and Sharjah. This includes Dental clinics, Medical centers, polyclinics and hospitals. The purpose of the questionnaire and how they should be answered was explained, and whenever necessary further information was provided to the participant. The questionnaires were distributed by the researchers between September 2016 and February 2017. All the data entered into the Microsoft Excel, and then transferred into SPSS program. Data analyses were conducted by the use of SPSS windows version 21.0 (SPSS Inc., Chicago, IL, USA).

Results

This cross-sectional study evaluated knowledge and practice of dentists in United Arab Emirates regarding early detection of oral cancer. A total of 298 dentists participated in this study with a total response rate of 80%. Missing data were excluded from the analysis. Of the 298 dentists 169 (57%) were female almost two -third of the dentists are younger than 30 years. Over 92% of the respondent had practiced for less than 15 years as a dentist. Only 13.7% had a post graduate qualification (Table 1).

To examine participant's knowledge about pre-cancer and cancer conditions; dentists were asked about risk factors and the most common sites affected by oral cancer. Dentists were aware of the major risk factors most likely associated with a lot of cancer, since 99% of them identified tobacco in smokeless or smoking form as a risk factors for developing oral cancer, followed by previous history of oral cancer 92.3%, alcohol habits 87.3% , Human Papilloma Virus (HPV) 76.6%, prolonged sunlight exposure 73.2%, advanced age 60.9% and poor diet 43.8% Around one -third of the respondent paid attention to the overall tongue as a potential site for malignancy (Table 2).

Looking at the dentist's knowledge about oral cancer; persistent of an ulcer was the best known clinical presentation of oral cancer (87.6 %) followed by enlargement of cervical lymph nodes (82.9%) other possible presentation of oral cancer including dysphagia, lump and red lesion was also known to almost two- third of the dentists. Regarding the diagnostic techniques that might help in early detection of oral cancer 40% of the respondents reported scalpel biopsy 40% as the most common diagnostic technique followed by brush biopsy 20.4% but to a less extent with Toluidine blue 6.0 %, fluorescent imaging 5.7% and exfoliative cytology 5.0%. Assessing dentist's knowledge about the conditions associated with early oral cancer; leukoplakia followed by chronic hyperplastic candidiasis and actinic cheilitis were the best known conditions by the participants as it is associated with early oral cancer. Other conditions such as erythroplakia and lichenoid lesion were much less recognized for their risk of malignant transformation by the respondents (Table 3).

Table 1. Background Characteristics of the Respondents

Variables	n	(%)
Gender		
Male	129	(43.1)
Female	169	(57.0)
Age Group		
<30 years	204	(68.2)
>30 years	81	(27.1)
Nature of clinical practice		
private	267	(89.5)
public	31	(10.5)
Time Since Graduation		
<15 years	275	(92.3)
>15 yeas	23	(7.7)
Highest Qualification		
BDS	256	(85.6)
MSc / PhD	41	(13.7)

BDS, Bachelor of Dental Surgery; MSc, Master of Science; PhD, Doctorate of Philosophy

Table 2. Percentage Distribution of General Dental Practitioners' Response on the Common Sites and Risk Factors for Oral Lesions

What would you consider as risk factors for oral cancer		Which sites would you pay attention to when looking for potentially malignant lesions?	
Risk Factors	Responses	Site	Responses
Tobacco	99.00%	Tongue	30.10%
Previous history of oral cancer	92.30%	All sites	21.10%
Alcohol	87.30%	Floor of the mouth	18.70%
HPV	76.60%	Buccal / Labial mucosa	9.40%
Sun exposure	73.20%	Palate	7.00%
Advanced age	60.90%		
Poor diet	43.80%		

Table 3. Dentists' Knowledge about Oral Cancer

Variables	Correct Responses	
	n	(%)
Knowledge about clinical presentations		
Persistent ulcer	262	(87.6)
Enlarged lymph nodes	248	(82.9)
White lesion	239	(79.9)
Dysphagia & limited tongue mobility	203	(68.6)
Lump	200	(66.9)
Red lesion	189	(63.2)
Non-healing socket	105	(35.1)
Knowledge about diagnostic techniques		
Scalpel biopsy	120	(40.0)
Brush biopsy	61	(20.4)
Toluidine blue	18	(6.0)
Fluorescent imaging	17	(5.7)
Exfoliative cytology	15	(5.0)
Knowledge about conditions associated with early oral cancer		
Leukoplakia	85	(28.4)
Chronic hyperplastic candidiasis	57	(19.1)
Actinic cheilitis	56	(18.6)
Erythroplakia	23	(7.7)
Lichenoid lesion	17	(5.7)
Others	10	(3.3)

The opinions of the respondents regarding oral cancer are given in (Table 4). Forty- nine dentists (31.4%) felt confident to diagnose oral cancer cases. Only thirty dentists (9.9%) were comfortable in performing biopsy in their clinic. Further analysis also showed that almost half of the respondents attended continuing education course related to oral cancer within the past five years. Nearly 85 percent felt that they need further training on oral cancer detection (Table 4).

Table 4. Respondent's Opinions Regarding Oral Cancer

Variables	n	(%)
I feel confident to diagnose oral cancer from clinical appearance	49	(31.4)
I am comfortable performing biopsy in the clinic	30	(9.9)
Attended a CE course on oral cancer within the past 5-years	143	(48.0)
I need further training on oral cancer detection	254	(84.9)

Discussion

The majority of dentists appeared to have a good knowledge of the risk factors and the clinical presentation of oral cancer. However, the findings of the present study identified several deficiencies in the knowledge of dentist working in UAE with regard to the diagnostic techniques and identifying conditions associated commonly with early oral cancer. Inadequate knowledge about oral cancer has been widely documented among general practitioners from both developed and developing countries (Babiker et al., 2017; Kebabcıoğlu and Pekiner, 2017; Alaizari and Al-Maweri, 2014). Lack of awareness of oral cancer risk and clinical signs may prohibit dentists from delivering preventive advice. The lack of knowledge observed could be attributed to the fact that the majority of the participants (89.5%) are practicing in private clinics. Dentist working in public setting have significantly more knowledge on oral cancer (Saleh et al., 2017). This is probably due to the fact that most cancer awareness campaigns have been conducted within public sector. In addition, dentists practicing in the public setting may have better opportunities for continuing education. This has been clearly reflected by the interest expressed by the majority of participants in this study to take part in future training.

It is well-established that oral cancer is largely related to lifestyle and as health care providers; dental practitioners should be well aware of these factors and further, play a central role in providing information about the benefits that could result from the changing of lifestyle habits (Galvão-Moreira and da Cruz, 2017). It is encouraging that large majority of dentist identified most risk factors for oral cancer. Tobacco use is the main risk factor for oral cancer (Johnson, 2001) and was identified by all respondents which indicate that dentist's knowledge is consistent with the current understanding of the etiology of oral premalignant and malignant lesions. This was in accordance with the results of Jaber (2011) and Colella et al., (2008). Member of the dental team is in an ideal position to help people stop smoking, because they are among the few healthcare professionals who routinely see "healthy individuals" (Hashim and Ismail, 2016). Therefore, all oral health institutions and all continuing

education providers in the UAE should integrate tobacco-related subjects into their programs.

Dentists' knowledge of the most common site affected by oral cancer was found to be less compared to their knowledge of risk factors. The lateral aspect of the tongue and floor of the mouth are at greatest risk for cancer development (Galvão-Moreira and da Cruz, 2017) only one third of the respondent recognized that the tongue as a high risk area for cancer occurrence. Other study demonstrated better knowledge of dentist in this regard (Joseph et al., 2011). The participants were more aware about early and late clinical presentation of oral cancer such as persistent ulcer, enlarged lymph nodes, white lesions, red lesion and lump this finding is better than what has been reported in Jordan by Hassona et al., (2015).

Unfortunately, despite the availability of oral cavity for examination and not requiring advanced tools and also not being uncomfortable for the patients, most cases of oral cancers are diagnosed when the symptoms appear because of the progress of the disease (Varela-Centelles et al., 2017). Many diagnostic techniques have been used to help in screening and early detection of oral cancer (Walsh et al., 2013; Masthan et al., 2012). Scalpel biopsy is considered the gold standard in oral cancer diagnosis. Less than half of the respondents were aware of this fact, and fewer than that know about other less invasive techniques such as brush biopsy, Toluidine blue, fluorescent imaging and exfoilative cytology. Lack of experience in performing biopsies should be attributed to insufficient importance placed on the practical teaching of biopsy techniques during their undergraduate training (Wan and Savage 2010; Murgod et al., 2011). Furthermore, it might be related to the fact that only the minority of the participants (13.7%) have a higher qualification.

Despite, staining of live tissue with Toludine blue has been identified as a useful aid in selection of biopsy site in cases of premalignant lesions (Scully et al., 2008), unfortunately few respondents (6%) identify it as a diagnostic technique. Leukoplakia and erythroplakia are the best known oral potentially malignancy disorders (OPMDs) was not identified by the majority of respondents. Dentists need to possess a thorough knowledge of clinical signs of oral cancer in order to be effective in identifying, referring and counseling high-risk patients.

Oral visual screening can reduce mortality in high-risk individuals and has the potential to prevent at least 37,000 oral cancer deaths worldwide (Sankaranarayanan et al., 2005) In spite of the high knowledge on risk factors of oral cancer, the lack of confidence in conducting comprehensive oral cancer examination and performing biopsy in the clinic is evident. Similar finding has been reported by Anandani et al., (2015) and Murgod et al., (2011). The majority of respondent had less than 15 years of experience, it appears to be necessary to emphasize the importance of oral soft tissue examinations in the undergraduate curriculum and provide opportunities for dental practitioners to ensure that such examination become a routine practice.

Dentists are familiar with the structures and health of the oral cavity and are the first group who might examine patients for main signs and symptoms of oral cancer; so they can significantly enhance the life expectancy in patients suffering from oral cancers. Conventional oral examination still constitutes the gold standard screening tool for potentially malignant oral lesions and cancer. Interestingly, the findings of the most lasting (15-year) randomized controlled trial on oral cancer screening using visual examination supported the introduction of a screening program in high-risk individuals (Kujan et al., 2003)

There are many reasons why dentists may avoid mucosal screening. Barriers can hamper practioners' ability or even motivation to perform mucosal screening (Kao et al., 2009; Laronde et al., 2008). Lack of training and lack of confidence were seen as barriers to at least some degree by participants in this study. Similar finding has been reported by (Brocklehurst et al., 2010; LeHew et al., 2010). Therefore, educational strategies should be aimed at providing current information on oral examinations, diagnostic techniques and conditions associated with oral cancer, thus facilitating early detection.

It is well established that dentists' knowledge and practices are positively influenced by continues education courses (Silverman and Rankin, 2010). Our study demonstrated that only 48% of the dentist attended special training on oral malignancy and pre-malignancy. This provides further evidence for the need of more training for dentists as highlighted by other researcher (Salah et al., 2017; Macpherson et al., 2003). In this survey most dentists expressed their need to attend continuing education training on oral cancer which might be considered as an excellent indicator for improving the current situation, and this study provided clues on the areas that require focus more during the continuing education courses; such courses will go a long way to enhance the prevention and early detection of oral cancer.

Although the response rate for this study was good, one of the main limitations of this type of research is that what people report may differ from that which they actually do. The tendency of dentists to provide socially acceptable answer might bias the outcome. However, the anonymous nature of the questionnaire should have minimized this type of information error. Nevertheless, despite this limitation the study provides some important information about dentists' knowledge and opinion regarding oral cancer.

Based on our findings, we believe that more education of dentists would serve to address the knowledge deficiency and practice shortcomings with regard to oral cancer screening, prevention and early detection. Continuing education courses can have an optimistic influence on practitioners' ability to detect oral cancer at early stages through improving their knowledge and early detection practices.

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