Oral cancer and cultural factors in Asia

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INTRODUCTION

The social and cultural habits that may predispose people to oral cancer are common in resource-poor countries in Southeast Asia, and remain prevalent among its users following migration to other and better resourced countries. As a result, countries that once rarely experienced high levels of oral cancer will likely see a considerable increase of this disease. It has been suggested that following migration from these countries to North America, the habit has remained prevalent among this ethnic group.1 Increasing the level of awareness among oral health professionals about oral cancer and its related cultural risk factors, as well as developing better early diagnosis are of key importance in addressing morbidity rates.2 Recognizing the need for increased oral health service, oral health prevention and rehabilitative treatment strategies, the faculty of dentistry at the University of British Columbia General Practice Residency program has established a collaborative international rotation in Vietnam. This international experience has been designed to broaden the scope of learning for dental postgraduate students to include an understanding of regional patterns of disease process, treatment modalities and cultural competency. The objective of the present overview is to describe the cultural risk factors associated with oral cancer in immigrant populations from resource-poor Southeast Asian countries with a particular focus on Vietnam.

FACTS ABOUT ORAL CANCER

Oral cancer is a serious public health problem with over 200,000 new cases reported annually worldwide.3 The overall mortality rate for oral cancer remains high at approximately 50 per cent and even with modern medical services is probably due to the diagnosis only at the advanced stage of this disease.4 Oral cancer is responsible for more deaths than melanoma, Hodgkin’s disease, or cervical cancer.5 In most regions of the world, about 40 per cent of head and neck cancers are known to be oral squamous cell carcinoma originating in the oral cavity.6 In South-Central Asia, 80 per cent of head and neck cancers are found in the oral cavity and oropharynx.7 Oral squamous cell carcinoma comprises over 90 per cent of the malignancies beginning as inflammatory lesions such as leukoplakia, erythroplasia, and erythroleukoplakia.7,8

In 2002, two-thirds of the new cases and deaths occurring in the world due to oral cancer were observed in resource-poor countries.9 Annual incidence rates for oral and pharyngeal cancer are estimated at 25 cases per 100,000 in resource-poor countries.10 In Canada, oral cancer represents approximately 2.6 per cent of all cancers in males and 1.4 per cent in females.11 In 2008, these cases are estimated as approximately 3,400 new cases and 1,150 deaths.11 In the United States, the annual incidence rates for oral cancer are estimated at 10 cases per 100,000.12 Approximately 60 per cent of people diagnosed with oral cancer will survive only up to five years.3 It is important to emphasize that oral cancer is one of the few cancers whose survival rate has not improved over 30 years.12 Moreover, in the past three decades there has been a 60 per cent in-

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crease in oral cancer in adults under the age of 40. The diagnosis of oral cancer may be delayed because a clinician did not suspect the malignant nature of the lesion due in part to the limitations of visual and manual examination of the oral cavity, head and neck. Studies that previously only involved the Southeast Asian traditional cultural and carcinogenic habit of betel quid chewing now reveal a worldwide phenomenon that is increasing at a disturbing rate.

The recognized etiological agents and risk factors for oral cancer include tobacco use, frequent alcohol consumption, a compromised immune system, the use of areca nut, history of cancer, dietary habits and such less well-established factors as infection with certain types of human papilloma viruses. Alarming, 25 per cent of newly diagnosed cases of oral cancer do not fit the high-risk profile. It has been reported that rapid urbanization leading to an unhealthy lifestyle, such as increased access to and utilization of tobacco in its various forms as well as abuse of alcohol, leads to an increase in the incidence of oral precancer and cancer.

Tobacco use in all its forms is first on the list of risk factors of oral cancer with at least 75 per cent of those diagnosed with oral cancer being tobacco users. When tobacco use is combined with frequent alcohol consumption, the risk increases substantially as these two risk factors act synergistically exacerbating each other’s harmful effects.

Oral cancers are more common in parts of the world where areca nut with or without tobacco is chewed. The International Agency for Research on Cancer has classified betel quid without tobacco as a human carcinogen. Consequently, the use of areca nut in any form is not safe for oral health. The commercially manufactured forms of areca nut with additives such as sugar have even more oral health related risks.

Oral cancer in Asia

Oral cancer accounts for up to 40 per cent of all malignancies in Southeast Asia. In Vietnam, 19.80 per cent of all malignant neoplasms are diagnosed as oral cancer. In India, the incidence of oral cancer in women is 3-7 times higher than in resource-rich countries, and smoking and chewing of tobacco betel quid are identified as risk factors. In most regions of India, oral cancer is the most common cancer in men and the third most common cancer in women. Information emerging from Taiwan and China indicates that the incidence of oral cancer in men has tripled since the 1980s due to the chewing of betel quid. Tobacco generally is not added to betel quid in these regions.

Oral cancer in Vietnam

Vietnam is a resource-poor country with numerous challenges. Oral health care in Vietnam is aggravated by poverty, lack of health education, and lack of government funding and policies to provide a sufficient number of oral health care workers. The practice of seeing the dentist for a regular dental examination is traditionally not a major priority for many Vietnamese. It is no surprise that oral cancer ranks seventh of all cancers in Vietnam—the ratio of males to females was 1:1.5 in 1993 compared with a ratio of 1.3:1 in 2001.

Oral malignancies are often not being detected until individuals experience debilitating circumstances to normal oral function. The need for assessment of the imminent oral health problems and their contributing factors in Ho Chi Minh City has been realized. As many as 26 cases in 1000 patients admitted daily to the HCMC Oncology Hospital are diagnosed with advanced oral cancer due to tobacco use and inadequate diet. Consequently, these patients become immuno-compromised with considerably increased secondary risk of oral diseases and oral infections. Moreover, oral cancer is a possible result of cultural, socio-economic and behavioural factors such as limited access to oral health care leading to a diagnosis only at the advanced stages of a disease, inadequate information about oral health and proper nutrition, and the lack of funds and awareness about risk factors such as tobacco use, frequent alcohol use, and the use of betel quid.

In 2000, 4.1 per cent of Vietnamese women chewed areca nut or betel quid. The largest proportions of areca nut chewers are found in the two age groups of 55-64 years (19.70%), and of 65-75 years (8.39%). Precancerous and cancerous lesions found in females comprise 5.10 per cent of 11.49 per cent of oral mucosal lesions in South Vietnam including submucosal fibrosis, pink and white lesions, and oral mucosal lesions of betel quid use. Submucosal fibrosis in betel quid chewers was found to be 124 times higher compared with non betel quid chewers.

BEHAVIOURAL AND CULTURAL HABITS RELATED TO THE RISK OF ORAL CANCER

Tobacco use worldwide

The association between smoking and oral carcinoma has been firmly established from epidemiologic studies, revealing more than twice as many smokers among oral cancer patients as among non smokers. Worldwide, four million people die each year from tobacco related diseases and that number is expected to rise to 8.5 million a year by 2020. Smokers are six times more likely to develop oral cancer than those who do not smoke. Approximately 80 per cent of the world’s smokers live in resource-poor countries such as Vietnam where smoking rates have risen dramatically in the past few decades.

Tobacco use in Vietnam

Worldwide, Vietnam has the highest rate of smoking among males (63.4%). The prevalence of this unhealthy lifestyle is reported to a lesser extent among women (20%). However, smoking rates in Vietnamese women may be underestimated because it is not culturally acceptable for women to smoke. Smoking by youth and women is on the rise. Vietnamese who are both smokers and drinkers, or who are both smokers and betel quid chewers, have 2-3 times higher risk of contracting oral precancerous and cancerous lesions compared with those who only smoke.

Alcohol use worldwide

Alcohol abuse, defined as more than twenty-one standard drinks in one week, ranks second in risk factors for
the development of oral cancer.34-36 Canadian recommendations are not to exceed more than two standard drinks per day, one standard drink being 13.6 grams of alcohol. Further recommendations are not to exceed more than nine drinks per week for women and not to exceed more than fourteen drinks for men.34-36 Excessive alcohol consumption is related to oral cancer which is six times more common in drinkers than in non drinkers.32

Alcohol’s effect on the mouth may be the key to understanding how it works with tobacco to increase the risk of developing cancer. The dehydrating effect of alcohol on cell walls enhances the ability of tobacco carcinogens to permeate mouth tissues.37 Another hazardous influence of alcohol is that its excessive consumption leads to nutritional deficiencies which in turn can lower the body’s natural ability to use antioxidants to prevent the formation of cancers.36,38 Tobacco use has been proven to increase the risk of oral cancer, consequently people who use both alcohol and tobacco are at an especially high risk of contracting the disease. The combined effects of tobacco and alcohol are illustrated in a study of over 350 individuals who had oral cancer and their mortality rate was 31 per cent in 5 years.39

Alcohol use in Vietnam

In December 2006, Vietnamese Deputy Minister of Health Le Ngoc Trong expressed that excessive alcohol consumption had reached alarming proportions with serious consequences for the health and safety of the public.40 Vietnamese males commonly consume 0.5-1.5 litres of alcohol daily. Apart from individual suffering, alcohol abuse hampers national development and economic growth. According to the Vietnamese Health Strategy and Policy Institute, the cost of dealing with the consequences of excessive consumption of alcohol typically accounts for 2%-8% of national gross domestic product.40

Research suggests that Vietnamese youth (15-20 years old) are consuming more alcohol, and at younger ages. Of 480 surveyed youth, 30 per cent had consumed alcohol and approximately 20 per cent of young men, and to a lesser extent young women, reported intoxication in a six-month period.41 As oral cancer is being seen in younger populations in both resource-rich and resource-poor countries, more awareness and better communication with the public as well as with oral health and medical professionals about the detrimental effects of alcohol use in younger populations and the associated oral health risk is necessary.36

Areca nut and betel quid use worldwide

The areca nut is used as a chewing substance by approximately 600 million people worldwide.42 Betel quid is a mixture of areca nut (from the areca tree) and slaked lime (calcium hydroxide) wrapped within a betel leaf (from the Piper betel vine) although this mix varies in individuals and communities to include tobacco, various spices, sugar and chemicals.16 Betel quid is placed in the cheek of the mouth where it is chewed slowly. An estimation of 10%-20% of the world’s population chew areca nut in some form, often mixed in betel quid with or without tobacco.43 Betel quid chewing is a social and cultural practice for its stimulant effects, and it is thought to diminish hunger and to sweeten the breath. The usage of areca nut is indigenous to India, Sri Lanka, Maldives, Bangladesh, Myanmar, Taiwan and numerous islands in the South Pacific.43 The habit is popular in parts of Thailand, Indonesia, Malaysia, Cambodia, Vietnam, Philippines, Laos, China and in migrant communities from these countries.44 The chewing practice of betel quid dates back thousands of years and is deeply entrenched in the culture of the population in several parts of Southeast Asia.45 Both men and women of all ages in many countries, including children, chew areca nut.45

In communities throughout Southeast Asia, oral cancer including oral squamous cell carcinoma has been predominantly related to traditional areca nut use.16 In Southeast Asian countries, and specifically in the countries of Taiwan, India and China, a steep rise in oropharyngeal cancers has been observed since the early 1970s.16 Betel quid chewing worldwide is a known risk factor for oral leukoplasia, oral submucous fibrosis, and oral squamous cell carcinoma.1,16,26,44,45 The World Health Organization (WHO) has reported the use of betel quid as a widespread global risk habit that has spread due to increased migration of Asian communities to all continents resulting in an increase in oral cancers around the globe.16 A review of the approximately 1.5 million cancer deaths in England and Wales from the years 1973-1985 shows that Indian-born men had over two times, and Indian-born women over five times, greater risks of oral cancer mortality than native English and Welsh individuals.46 Consequently, public health concern of a worldwide epidemic of oral cancer relates to the use of betel quid and its substitutes by an increasing number of young adolescents.46

Areca nut and betel quid use in Vietnam

Evidently, betel quid chewing has cultural and traditional social significance particularly among elderly Vietnamese women. There is a common saying in Vietnamese social circles “the betel begins the conversation”.”5 The traditional wedding gift from a groom to the bride’s mother is an assortment of areca nut, betel leaf, slaked lime, tobacco, and additives such as the bark of the areca nut tree, peel of the areca nut, and the pomello fruit peel, even if betel quid chewing is not practised. Based on a folk tale, the betel leaf and areca nut are important symbols of love and marriage and the phrase “matters of betel and areca” (chuyen trau cau) is synonymous with marriage.57 In Vietnam, only the women are known to chew betel quid; although in a recent research study48 one man was identified as chewing betel quid for thirty-five years. Chewing areca nut is believed by Vietnamese to strengthen the teeth and keep the gums healthy. The teeth become heavily stained from this nut as well as from the practice of “tobacco rubbing” and “tobacco sticking”. Tobacco rubbing and sticking is accomplished by rubbing a small ball of raw dried tobacco over the gingiva on the anterior teeth and buccal mucosa and then sticking the tobacco ball in the cheek vestibule with the areca nut. When chewed, the areca nut creates a red juice that dyes the lips and stains the teeth dark brown. The red dye that leaks on the lips of women is traditionally considered to be attractive to men. Today in Vietnam, there is an increasing social stigma as-
associated with this habit among younger women who refer to this habit as being for elderly women only.

LACK OF ORAL HEALTH AWARENESS IN RESOURCE-POOR COUNTRIES

Awareness is virtually non-existent in resource-poor countries particularly about oral health risk factors such as sugar consumption, tobacco use, frequent alcohol consumption, betel quid chewing, stress, and inadequate information about health and diet. The trend of the increasing flow of rural to urban migration compounds the problems of the urban poor population including increased oral health treatment needs. This pattern has evolved over the past twenty years, and it is likely to become more than the exception.49

The changing socio-economic situation in some countries may have a strong negative association with oral health.50 For example, a report in the Vietnamese Sunday Morning Post by the Columbia University's Earth Institute states, "Cheap food, cigarettes and city life are causing millions of early deaths in the developing world... as populations increase in cities. The tobacco scourge, now at epidemic levels in less developed countries, exacts its tolls in many ways..."51 The increased incidence of oral cancer is associated with rising affluence which relates to the potential increase in exposure to additional amounts of tobacco and alcohol.50 As a possible result, rising oral cancer statistics worldwide appear to be a reflection of the currently increasing urbanization and increasing affluence.50,51

Oral health awareness in Vietnam

Medical surgeons and oncologists in southern Vietnam are concerned about oral health education for patients as well as for doctors. The low level of health literacy of oral cancer patients has been related to extreme patient load, lack of time for health care professionals and lack of human resources. People are frightened and confused about their disease perceiving oral cancer as a contagious disease. Therefore, a multidisciplinary approach to oral health care of cancer patients is required.52,53 Access to public oral health education is part of that approach. Many concepts of this education have unclear boundaries between access and demand, between health status and health care and between perceived individual need and social responsibility.54 Vietnam has a Cancer Prevention Program as well as a National Oral Health Promotion Program, yet there is a lack of patients’ knowledge of their oral disease. The WHO Basic Package of Oral Care (BPOC) is an example of proven effectiveness and is acceptable, feasible and affordable for most disadvantaged communities to improve their oral health care.55 The three components of BPOC are oral urgent treatment, affordable fluoride toothpaste, and atraumatic restorative treatment (ART).55

WORLDWIDE ORAL CANCER EDUCATION

An awareness of creating a healthy lifestyle and behaviour to prevent oral cancer is dependent on changes in both lifestyle and cultural values. This change can be accomplished through a well planned preventive oral health education based on in-depth understanding of community needs and their specific characteristics, people's habits and self perceived oral health problems and needs as well as good use of the existing infrastructures.55 Various non government organizations have contributed to the oral health education of resource-poor countries worldwide. For example, Path Canada is a non-profit organization that has greatly advanced the education of the Vietnamese authorities and public in general about the hazardous effects of tobacco use. It is also important to consider that tobacco use and frequent alcohol consumption thrives and competes against basic human needs.56 Through this project, a unique opportunity exists in Vietnam to study the association of intra-household tobacco use expenditures and their impact on child health and poverty.56 Furthermore, the association of betel quid use with the increase of precancerous conditions and oral cancerous lesions highlights the importance of education not only on tobacco cessation and less alcohol consumption but also on betel quid cessation.

It can be concluded that an active preventive educational approach is required to curb the rising increase in oral cancer due to culturally related risk habits especially in Asia and within Asian immigrant populations around the world.

REFERENCES
