



Epidemiology of Oral Cancer: Review

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Abstract

Oral cancer is the eighth most common cancer in the world with its incidence variably increasing. This however remains unconfirmed in some parts of Africa, particularly East Africa. Males are generally more affected than females with a mean age of 55 years. The aim of this review is to analyse the oral cancer trend, cases, most common sites affected, and histological types.

Keywords: Oral Cancer; Kenya

Literature Review

Oral cancer prevalence varies around the world and it is overall the eighth most common cancer [1], whereas in other articles it is ranked as the fifth most prevalent type of cancer in males in the less developed countries [2]. The incidence of oral cancer has markedly increased in the United Kingdom since the mid 1970s [3] and this has increased by approximately 88% in men and 82% in women [3]. The most common sites affected by oral cancer are the lip, tongue, gingiva and floor of the mouth [4].

Globally, however, the worldwide incidence and trend of oral cancer is increasing and is variable [2,5,6]. For instance in Europe it accounts for 2% of all cancers similar to the United Kingdom. It is however highest in Hungary, lowest in Greece and 2 - 3% in the United States, with the greatest incidence being seen in Asia [3].

In Africa, the incidence is unconfirmed [7]. This is a major concern since there appears to be a slight decline in oral cancer rates in Republic of South Africa whereas in East Africa particularly in Kenya this remains unknown. Some studies show that in Kenya it is 2.3% [8] with the sources of available data being old and in some instances non-existent [9]. The available data on oral cancer is not only old, but there appears to be significant under-reporting

[9]. While some patients can afford to travel abroad for treatment hence the records are lost [9], males are generally affected with oral cancer than women, with the mean age being 55 years [10].

Current evidence suggests that younger people are presenting with oral cancer, surprisingly even those who lack the risk factors of tobacco and alcohol consumption [3]. Some studies have attributed this to the presence of infection with human papilloma virus (HPV), probably resulting from sexual activity [3].

Despite the fact that "tobacco use remains uncommon in most sub-Saharan Africa even if tobacco companies conduct(ed) aggressive marketing campaigns, particularly targeting the youth" [9], the age standardised incidence rate (ASIRs) remain low in western, eastern but not southern Africa. It was surprising to note that Zimbabwe being the largest producer of tobacco in Africa had a low ASIR rate [9].

With good health infrastructure like that of South Africa, Kenya, Zimbabwe, Nigeria, there was a relatively low death rate from lip and oral cancer than countries with a lesser developed health infrastructure, because patients have a longer survival rate due to the early detection and management provided to prevent premature deaths [9].

There appeared to be minimal available information on detailed distribution of lip and intra-oral cancers in African countries. For example in a Zimbabwean population of 358 patients the results showed that the mandibular gingiva is most commonly affected (18.2%), then the tongue (17.9%) and the floor of the mouth (16.2%), the maxillary gingiva was involved in 9% of the cases and hard palate (8%) squamous cell carcinoma (SCC). The buccal mucosa accounted for 9%, soft palate 5% and lips 3.9% [9].

Past trends

Oral cancer cases in China occurred in men between the ages of 40 to 60 years old, which is a relatively younger age bracket than the rest of the world [11].

In India, younger cohorts were observed to show an increasing trend in oral cancer and this was the case in both men and women [6]. Whereas in Africa specifically Sudan, this was not the case. Perhaps since it is still a taboo for younger people to consume tobacco and alcohol at a younger age. In South Africa this was also the case, with a peak age of 55 years [9].

In South Africa, the period between 1988 and 2012 showed a decline of intra-oral cancer males of approximately 30% [9] with this being attributed to several factors. One, aggressive public campaigns leading to increases in the price of tobacco products, hence reduced consumption. Two, reduced rates of reporting of cancer data with a decline in the receipts at the South Africa National Cancer Registry (SA-NCR). Three, due to the high HIV/AIDS rates, an increase in the mortality with an overall decline in the survival age of the South African population prone to cancer [9]. In Kenya, a gradual oral cancer decline was noted in a retrospective study conducted at the Kenyatta National Hospital, Nairobi in 2004 [7].

The HPV epidemic, which began in 1997 to 2001 in South Africa, may have also affected the epidemiological trends in oral squamous cell carcinoma (OSCC) trends, with males below the age of 45 years being affected. 7.28% in males and 7.84% in females [9].

Aetiology, risk factors and effects

It is not clear as to the cause of cancer and its epidemiology in Africa. This is because of the diverse ethnicities, lack of adequate healthcare facilities, extremely variable environment and socio-economic disparities [9].

The most common aetiological and risk factors in Africa are alcohol and/or tobacco abuse, together with use of other leaf and bark products such as Toombak, khat/miraa, areca and kola nuts (21-27). Khat being a psychoactive stimulant leaf indigenous to East Africa and parts of the Middle East has adverse oral and systemic effects with weak carcinogenic effects [9].

Cigarette smoking increases the likelihood of developing oral cancer by 2 - 4 times, since smoking has a synergistic effect when combined with alcohol consumption; the risk increases to 6 - 15 times [3].

The risk of developing periodontal attachment loss due to smoking cigarettes also increases by 2 - 5 times. This can mask periodontal disease because of the vaso-constrictive effects of nicotine on the gingiva, hence bleeding and redness characteristic of gingivitis does not occur [3].

Other risk factors identified and documented are exposure to radiation, vitamin deficiencies, HPV presence, occupational exposures and periodontal disease [12]. Poverty, poor oral hygiene, and public ignorance are some of the social risk factors that influence global trends of oral cancer. These have been shown to have associations in the development of oral cancer especially in rural areas, which provide minimal opportunity for oral examination to detect early and late oral cancer lesions [9].

The role of HPV infection in oral cancer has not been established in sub-Saharan Africa, much as HPV and HIV have synergistic effects at molecular, cellular, and clinical levels and are frequently co-transmitted [9]. A case in point would be what was observed between the years 1997 to 2001, where the HPV epidemic peaked in South Africa, whereas the HIV epidemic peaked in 2000 in sub-Saharan Africa. This however led to reports that the HIV infection rate had minimal or "no stimulating influence on the incidence rates of oral squamous carcinoma" [9].

Conclusion

Oral cancer trends vary in the world. The trends however, remain relatively unconfirmed in Africa as opposed to others parts of the world. It is with this in mind that it is suggested to carry out research in the epidemiology of oral cancer in the Africa.

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