

Review Article

Social Inequalities and Early Detection of Oral Cancer

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INTRODUCTION

Health inequality is the generic term used to designate differences, variations, and disparities in the health status of individuals and population groups. According to the definition proposed by the World Health Organization, health inequity implies that inequalities are unnecessary, avoidable and unjust [1,2]. One of the determinants that have more impact on inequalities in oral health is inequality in access to health services, in different studies highlighting the barriers to health as the most relevant [3]. WHO believes that there is equity in the services when warranted: 1) equal access to the services available to same needs, 2) use equal for equal needs and 3) equal for all [4]. According to analysis by the Agency for Research on Cancer in 2010 increased cancer incidence is higher in poorer regions of the world: Africa, Southeast Asia and Latin America [5]. In systematic reviews has been reported that the incidence and mortality from cancer sites are different among different socioeconomic and gender [6]. On the one hand, men of lower socioeconomic strata have a higher risk of illness and death from cancer of the respiratory system (nose, larynx or lung) and oral cavity (pharynx, esophagus or stomach) cancer, while women of the same strata have increased risk of esophageal cancer, stomach and cervix. On the other hand in the case of the higher social classes, men have a higher risk of getting sick and dying from colon, brain and melanoma cancer, and women, colon cancer, breast, ovary and skin [7].

In short the lower social classes have higher incidence and mortality from oral cancer and the highest adjacent areas. These social class differences are explained by differential exposure to risk factors, such as education and working conditions, level of education, sexual and reproductive behavior, biological agents, in general, behaviors, habits and consumption related to the class social (diet, snuff, alcohol, sedentary lifestyle, etc.). Additionally there may be barriers to access still unknown to the early detection and control. This lack of strategies for public health as education in the practice of oral self-examination, the induction of behavior modification associated with the use of tobacco and alcohol consumption, and continuing practice by the Dental Exam complete clinical in all patients, and the practice of cytology and biopsy in suspected cases, which are coupled with local capacity, the availability of financial, technological and human resources, supply of service and independence of private health insurance, all of which promote the reduction of fatalities.

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The early diagnosis of oral cancer is very efficient and preventive because the risk factors are easily identifiable and that the Asymptomatic initial phase is easily detectable, but ironically, the results are very poor in the first place that inadequate criteria used for clinical recognition of early disease, and secondly because it does not focus on specific groups, ie, do not have a plausible understanding of the different regions, cultures and conditions, ways and lifestyles, so much less of its determinants social health [8].

Importantly, equity and social determinants of oral health change when connected emphasize that the most affected population is the elderly and the poor, which is not economically active population usually live in conditions of poverty and has persistent behavior and unhealthy choices such as poor nutrition, poor hygiene, lack of access to health services, overweight / obesity, and a history of consumption of snuff and alcohol [9]. It is obvious then that a disease that is easily detected but a high mortality count today in classical epidemiology with the identification of the causal factors of late diagnosis, which are identified as i. Professional practice, ii. Barriers to access to health services and iii. Ignorance on the part of the patient by deficiencies in the health system [10].

Oriented studies from the biomedical paradigm on late diagnosis of oral cancer emphasize that the transmission of information to patients is an effective primary effect on general knowledge of the public and has a secondary effect on the disease, the essential characteristics of the detection early screening through an ideal test were based on questions asked clinicians and scientists [11]. It is further believed that inequities in access to health deficiencies of the health system in most countries of the world are associated with the non-conducting educational campaigns to ensure both the education of the population as the training of professional's oral health at local, regional and national levels. This same architecture for the health system, because no state guarantor of the right to health and multinational

manufacturers and trading companies that have technology for early detection and control of oral cancer are linked tools [12]. Unlike Mooney access use and believes that equal access is related to opportunities to use a service, regardless of whether the person makes it effective, while the use as such, is related to both the supply and the demand [13]. The situation is worst in developing country, for example the Ten Year Plan for Cancer Control in Colombia, which does not provide for the prevention of oral cancer, the insurance model ensures access to potential interventions tertiary care or therapeutic / surgical for diseases such as high cost but cancer prevention.

It is necessary to include in the model of prevention and control of cancers as lethal as the mouth, which Aday and Andersen distinguished as the three access levels are related through individual, organizational and social determinants: 1) Political: planned actions and directed by the state to improve access to health services. Many of the barriers that arise are associated with institutional weaknesses of the system, caused by a lack of resources, poor allocation thereof, or as a consequence of the definition of the benefit plan and procedures to be part of the list potential 2) access; recipients: interaction between the characteristics of the health system and the individual, which attributed to the supply or service delivery system, presented in the entry, after initial contact barriers arise, and system output. On the demand side factors involved as predisposing, need and ability of the agents, and 3) Real Access: determinants related objectives, how the health system meets the needs of users, and subjective service utilization – satisfaction [14-17].

It is of paramount importance that professionals possess adequate oral health knowledge, attitudes and practices regarding the prevention and control of oral cancer. Asia accounts for over 40% of all cancers, whereas in industrialized countries is between 1 and 4% of men and about half women. In men, the highest incidence rates are found in Southeast Asia [18], parts of Western Europe, Eastern Europe and Australia / New Zealand [19]. In women, the incidence is relatively high in South Asia [20]. These variations in the regional distribution of oral cancer and its results have been recently documented. These patterns clearly involve significant geographic differences in risk factors, such as the use of snuff / alcohol in Western Europe, Southern Europe and South Africa, and chewing betel bolus in Southeast Asia and Melanesia [21,22]. Regional differences were observed in the number of related oral cancer between developed and developing countries deaths. The struggle to reduce mortality from oral cancer can be performed at three different levels: i. primary prevention: education and increase in tax snuff and alcohol ii. Secondary prevention: screening (screening) and early detection, and iii. Better treatment, but this requires that practitioners are adequately trained. This form of cancer shares many common features with those of other tissues, such as breast and cervical cancer. Indeed, screening programs (screening) for major cancers, such as breast cancer and cervical cancer have effectively improved mortality rates and helped reduce the incidence of these cancers. Have not been implemented national screening programs (screening) based on population for oral cancer in developed countries, although it has promoted screening (screening) opportunistically [23].

Although the countries of the Region of the Americas after more than 30 years of the International Conference on Primary Health Care have developed policies and programs for primary care a staple of their national health systems, contradictorily have persisted diseases that prevent achieving health, including malignancies that account for a fifth of the mortality from all chronic diseases in the Americas. The natural history of oral cancer and precancer is variable between countries with low and high levels, however are common principles and criteria on screening practices in oral cavity, which applies in presymptomatic stage to reduce the incidence of invasive lesions. For this purpose early detection by visual examination is the cheapest in the context of primary health care tool [24].

Cancer of the oral cavity and lips worldwide reaches around 300,373 new cases, 185,267 in people under 65 years and 115,106 in people with over 65 years at 2012 according to Globocan [25]. Most of these cancers are diagnosed in late stages [26]. It is known that both dentists and hygienists have few skills for the prevention and control of cancer, found that oral cancer examination is highly significant if dental hygienists have received information about oral cancer prevention scientific journals and associations. In some countries patients have more access to doctors to dentists when they suspect or detect oral lesions, so that physicians play an important role in the implementation of preventive programs of oral cancer. Thus, the detection of cancer involves all health professionals in reducing morbidity and mortality [27,28].

So it is necessary in the interests of the epidemiology early detection of oral cancer, some authors eg. oral cancer can be divided into three grades groups own oral cavity carcinomas, carcinomas of lip vermilion and carcinomas of the oropharynx, which are more common in men than in women, in a 2:1 ratio [29], however, prevails today a slight decrease in the rate of head and neck cancers in men as in women has increased, yet the cause is unknown but is believed to be associated with the prevalence of human papilloma virus and increasing exposure to carcinogens such as snuff and alcohol. The cancer rate of air - digestive tract is higher in African descent in countries like the United States. Premalignant oral lesions such as leukoplakia and erythroplasia been considered precancerous oral lesions par excellence, according Mashberg there about possibilities of developing carcinoma in oral cavity by 33% when they are erythroplasia, 4.9% when they have been leucoplásicos and by 60% when the combination of both, ie, leucoeritoplásico or carcinoma in situ. As for the factors strongly associated with the development of these malignancies risk is five times higher in smokers than in nonsmokers, increasing 17 times the risk in people who smoke up to 80 or more cigarettes, likewise increases twice the risk passive smokers [30,31].

The occurrence of second primaries in air digestive tract cancer in patients who stopped smoking after his first healing cancer is 18% while for those who continued to smoke is 30%, so as interruption of the habit of smoking significantly decreases the risk of premalignant or malignant oral lesions. The risk of precancerous lesions in air - digestive tract increases four times when the cancer is lifelong smoker. The cigars or pipe smokers often develop malignant lesions on the lips and tongue. Cigarette

smokers in addition to the oral cavity regularly have more risk of these lesions in the larynx and pharynx. The type of snuff affects the risk of cancer, for example, there are two types of dark snuff that is more alkaline, more irritating to mucous membranes and associated with laryngeal cancer or supraglottic area for its lower inhalation, whose habit and risk of onset is usually located more in countries like Colombia, Brazil, Italy, Spain, Cuba, Uruguay among others, and there is a clear or blond consumption snuff, which produces increased occurrence of cancer in glottal area for most inhalation, and is very common in the United States. Another element of the cigarette that is associated with increased cancer are short cigarettes containing higher concentrations of carcinogens and cigarettes "Light" that are consumed in greater numbers, they also reported greater increase in hand-rolled cigarettes [32,33]. Smoking inside the mouth or placed the cigarette in sublingual area or very common in areas of the Colombian Pacific and Atlantic coast predominantly of African descent cheek. This evidence is still lacking in most countries, therefore it is not known how to implement a program in context early detection and control of oral cancer [34,35].

Thus, the formulation and implementation of policy cancer faces the following problems:

1. Difficulty incorporating the policy agenda: the problem has not been given the magnitude it has, situation left by the absence of extensive knowledge on the subject.
2. Personalization and customization of interest: each of the actors (Government, community, academia, unionization, etc.) Have their own purpose and not working as a team, this lack of synergy affects the achievement of the purposes.
3. Lack of dynamic and ongoing scientific knowledge: the development of science-based policy requires a knowledge which is not counted [36,37].

The scientific basis for risk assessment is fraught with uncertainties and regulatory decisions necessarily require greater scientific evidence. Not formulated a policy for cancer control with a strong regulatory and less oriented oral health component. Therefore, delayed diagnosis has often been categorized as: patient delay, as it is the period from the first notification of manifestation of a symptom of the patient and their first consultation with a professional and delay as the period the first consultation and the final diagnosis or initiation of therapy. The outcome variable for prognosis is framed on the following objectives: i. treatment plan ii. Forecast indicated iii. Assistance in evaluating treatment outcomes, iv. Facilitate the exchange of information between centers and treatment, and v. Contribute to ongoing cancer research [38].

This process can be summarized in four steps:

1. Presence of signs and symptoms associated with the cancer -inducing visit to the dentist or doctor
2. Is the reference to specialist?
3. It is the receipt by the professional institute
4. It is the determination of the final diagnosis.

The first and third step dependent patients and the second

and fourth step are up to the professionals. In the first step clinically patients show a tendency to recognize the symptoms. In step two patients with ulcerations or white lesions as initial symptoms often show delayed manifestation of pain and swelling. In the third step the types of signs and symptoms and the degree of swelling status swollen lymph nodes not associated with late diagnosis. The late diagnosis of oral cancer is framed within the time duration between the presence of signs and symptoms and the first visit to the professional but also the duration between the initial visit and the professional skill of the same for the final diagnosis. The mean duration associated with the patient is between two weeks and four months regularly between one to two months. And the average duration associated with the professional is between 11 days and 12 days. The average duration for the first step was 1.6 and for the remaining steps 14 days, which is comparable with the different reports [39,40].

To minimize the first step attributed patients, many authors have emphasized the importance of patient education and regular examination by the practitioner in patients at high risk of cancer. Late diagnoses associated professionals relate to small tumors although other authors report no significant association between late diagnosis and size. The specialty of professional plays an important role in the late diagnosis there are even reports indicating that the duration between visits to the dentist and the specialist interconsultation is greater than in the case of the doctor's visit and interconsultation with the specialist, ie dentists usually slower and have less capabilities are reported for example, in differentiating cancer from benign oral lesions [41].

It is necessary to give more importance to education and direct it to the identification of new factors related to diagnostic delay. For this reason, it is necessary to act on the risk factors associated with oral cancer and promoting strategies to reduce the incidence of cancer. A systematic review of Kujan and collaborators in order to evaluate the effectiveness of screening programs in reducing mortality rates from oral cancer, appreciate randomized clinical trials, which are focused on the early detection of oral cancer or injury precancerous. These studies include the general population or high-risk groups [24].

Screening programs included in this review were: screening, toluidine blue, fluorescence imaging and brush biopsy. Undoubtedly the early detection techniques require implemented under some assumptions, such as: i. the incidence of oral cancer or oral precursor lesion ii. Mortality at three years; iii. The stage at diagnosis, and iv. Costs, quality of life, false positive or false negative, so many authors have concluded:

1. The need to reduce the burden of oral cancer suffer is essential.
2. Screening programs based on population require many years of research and development.
3. Most studies have focused on the visual clinical examination as a means of screening to mention details of alternative strategies.
4. Other research indicates that toluidine blue is a cost effective method to detect oral cancer in a primary care setting.

5. There are no studies that relate to screening the harmful effects, costs, quality of life.
6. Nor were reviewed in depth the disadvantages of screening, especially the risks of high levels of anxiety in patients, trauma, distress due even false positive results and unnecessary investigations [42,43].

It is clear then that oral cancer screening helps identify patients with earlier stages and this can be attributed in part to the limitations of current methods of treatment. The oral screening examination can reduce the risk of advanced cases, is also associated with the reduction of oral cancer mortality. Clearly, oral cancer screening should be introduced in national cancer control programs. It has been considered the standard method for the screening of oral cancer using the normal or incandescent light, with sensitivity and specificity rates of 98%. However Kujan and colleagues have concluded that there is no evidence to support or refute the use of this visual examination. Although this test can be effective as a screening test, there are still many problems with their use. For example, between 5-15% of the general population have oral mucosal abnormalities which are mostly clinically and biologically benign. The second problem the classic clinical presentation of a malignant or premalignant oral lesions are usually redness, persistent or whitish ulcers that cannot be diagnosed as another condition but are recognized, so as Thomson found that the 9/26 of the patients are usually newly diagnosed with histological evidence of dysplasia or microinvasive cancer[24].

Oral cytology was designed to find clinical lesions that require biopsy by their level of suspicion based on clinical aspects of low accuracy. Studies have shown that cytology is more useful for the assessment of precancerous lesions, while other multicenter studies determine the sensitivity and specificity of the test showing that precancerous lesions in Class I and II. It is reported that a positive result has specificity and a sensitivity of 100 % and if negative specificity is 93%. It is for this reason that this test is considered the histopathological gold standard. Its main clinical advantage is that is a non- aggressive and relatively painless, well accepted by patients, rapid technique that allows it to be practiced repeatedly in preventive screening programs in suspicious lesions already identified or track injury malignant aftercare, should be mentioned that it has lost importance, particularly because of its low sensitivity shown by the high number of false negative results. This low sensitivity is attributed to several factors, including inadequate sampling , error in the technical and subjective interpretation of cytologic findings, hence, the use of cytobrush appears to increase the number of cells collected per sample, and allows better distribution of them in the storage compartment , which could increase the sensitivity of the technique .

Toluidine blue has been used for decades to identify abnormalities in cervical mucosa and oral cavity. The toluidine blue sensitivity is in a range of 0.78 to 1.00 and specificity of 0.31 to 1.00. However, the problems of toluidine blue are:

1. There are no studies in a primary care setting
2. Data from secondary prevention studies are not necessarily applicable to the general population

3. There are no randomized trials
4. Some studies only include carcinomas or dysplasias and some include both
5. Histologic diagnoses are rarely used as a gold standard
6. The methods range from single or double staining to rinse wipe
7. There is confusion in the interpretation of staining as positive or negative[44,45].

Its main advantages are its low cost, ease of implementation and ease of reading, in addition to its safety, which meets the main tenets of screening tests. Despite these obvious advantages, there is no consensus on its sensitivity and specificity, as different studies have found different figures in these two parameters. This is believed to be due to differences in interpretation. Among the main studies that have addressed the clinical use of this staining find those Warnakulasuriya and Johnson, which evaluated the efficacy of toluidine blue 1% in 102 asymptomatic patients with 145 lesions, finding 18 carcinomas, all of which retained the staining for a sensitivity of 100 % and had no false negatives. Epstein and Scully confirm the usefulness of this staining as an adjunct to clinical examination and Samit Mashberg and propose the use of staining rinses after a negative or unsatisfactory in high-risk patients and clinical examination as a guide to determine where to perform biopsy [24].

As those based on light (ViziLite Plus , MICROLUX DL) detection systems used for many years in premalignant and malignant lesions require a solution of 1% acetic acid so as to increase the visibility of epithelial cells. The weakness of the studies about these tests lies in the number of cases histopathologic correlations, since the sensitivity and specificity or positive predictive value cannot guarantee the absence of a diagnostic gold standard comparison (biopsies). So that the tissue fluorescence emission to the presence of closed cellular alterations fluorophores concentrations changes affecting the scattering and absorption of light in tissue, since this results in changes in color that cannot be visually observed , the VELScope allows direct visualization of the oral cavity [46].

In studies where histology as the gold standard test used has shown a sensitivity of 98 % and a specificity of 100 % for discriminating dysplasias and cancers of the normal oral mucosa. However, the visual detection of premalignant lesions remains problematic, this by virtue of the contrast of skin lesions such as melanoma, which shows visual screening rate sensitivity and 93-98 % specificity enters. Unfortunately there is a dramatic increase in the development of oral cancer in the last decades in underdeveloped countries, in contrast to those countries with clinical and research tools. It is therefore important to use tools to counterbalance the lack of programs for early detection and control of oral cancer, especially in individuals of lower socioeconomic levels normally attend the limited service of Dentistry some health systems, for example there studies have shown that there is a heightened awareness of oral cancer in individuals who access information leaflets, about half of respondents are interested in more information [47,48].

There are two important issues in this type of tools the first

relates to the interest generated brochures on topics of oral cancer and the second in importance is gained in understanding manifestations and risk factors. Thus brochures are a method of dissemination and training. For this reason, screening (screening) can offer the opportunity to reduce the incidence of invasive lesions and may also help reduce mortality rates associated with oral cancer. In addition, screening (screening) could help identify high-risk groups and would provide better opportunities for interventions. Therefore, it is possible that the screening (screening) is associated with a decrease in costs. Moreover, the screening (screening) can be associated with significant problems with false positives and psychological trauma, and over- the -diagnosis and, as a result, the screening (screening) is considered ineffective from the point of view of costs. These aspects should be considered carefully before implementing any screening program (screening) and the benefits should outweigh the damage [49,50].

There are important documents such as resolution WHA60 A16 posed WHO global oral health program [8], which proposes within countries framing policies and strategies for oral health in the twenty-first century, this is intended to control and prevent oral cancer, since it is a significant component of the global burden of disease. Furthermore, consistent with the program, the Declaration of Crete in 2005 on the Prevention of Oral Cancer[51], in its principles exposes the need to promote research and action around the biological, behavioral and psychosocial factors, emphasizing the interrelation between oral health and general health , as well as emphasizing the strengthening of human resources. Recently in Latin America has the letter Brasilia on oral health in the Americas October 2009 [52], which recognizes high levels of social inequality in the distribution of oral diseases , their impact on social and economic development of our people and a commitment to contribute to the Millennium Development goals. Without any doubt, early detection has been one of the most effective strategies; example is the Southeast Asian countries like India where the primary and secondary prevention has produced both a significant reduction in morbidity and mortality, such as increased cure and survival. However, it is not clear yet the existence of unfair and avoidable differences in access to goods, services and opportunities for people who already have the disease in order to have timely information that will help strengthen policy actions and oral health [24-53].

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