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Review

Prevention and Treatment of Oral Squamous Cell Carcinoma-A Mini Review

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ABSTRACT

Oral squamous cell carcinoma (OSCC) is increasing day by day in its incidence and prevalence globally while its etiology differs in different parts of the world. Its risk factors, causative agents vary with regions and males are found to be dominating in using cigarettes, alcohol and gutka products, because of its easily availability and access to males in all places whereas females are more conscious about their health and esthetic value. This may be one of the reasons, which may be responsible for a high male-to-female ratio. This mini-review sheds lights on the treatment and preventive strategies available for the management of OSCC.

INTRODUCTION

Head and neck squamous cell carcinoma is the sixth most common and constitutes for 12 % of all malignancies worldwide [1]. Other related cancers included in this vast group includes cancers of oral and nasal cavity, larynx, pharynx and lips [2,3]. The factors of developing HNSCC are both environmental and related to lifestyle that comprehends excessive alcohol and drug consumption, tobacco smoking (in forms of cigarettes and bubble pipes) [4], certain chemicals, ultraviolet light and strains of human papillomavirus [5,6]. There is an increasing trend of developing HNSCC in younger age groups in recent times. However, in general, the age group of more than 50 years is more susceptible group for this cancer, comprising of 85% of diagnosed cases in United Kingdom [2].

Treatment:

Aggressive therapy is being used for the treatment of patients with OSCC. But this therapy is used only when the tumors are at initial stages. Aggressive therapy includes the radiotherapy and surgery. If the patients with very bad prognosis, another therapy is used which is known as the chemotherapy. Chemotherapy is mostly not recommended at advanced stages of tumors because starting stages of tumors can be treated by surgery and radiotherapy. Oral squamous cell carcinoma and its treatment straightly affects patients quality of life related to health. The basic functions of swallowing food, chewing and speech are changed often, while pain and psychosocial issues are those symptoms which can also be complicated and problem causing. The problematic psychosocial issues includes physical appearance and emotional functioning [7].

Hematopoietic stem cell transplantation is an effective therapeutic process mostly offered to patients with certain hematological cancers as multiple myeloma or leukemia [8]. Hematopoietic stem cell transplantation (HSCT) is a great risk factor for developing OSCC in such patients after the procedure. Such cancer that develops post stem cell transplantation therapy, has more aggressive nature and poor prognosis as compared to other patients of OSCC. It is speculated that this aggressive form of OSCC may be due to the continuous life long immune suppression and chronic oral graft-versus-host disease [9]. Hematopoietic stem cells (HSC) can be collected from the patient (autologous), identical twin (syngenic) or HLA identical donor (allogenous) [9].

Prevention:

There are three types of prevention methods against HPV infection. These include vaccines, microbicides and oral infection. To prevent infections from some types of HPV, there are two types of vaccines available in market. One is Gardasil, which is marketed by Merck specifically used for the prevention of infections caused by the HPV types 6, 11, 16 and 18 and the other one is Cervarix which is marketed by GlaxoSmithKline [10,11]. A study conducted by Buck suggests that Carrageenan (gelling agent) prevents HPV infections in animal model systems. Carrageenan is a sexual lubricant brand. If different inexpensive chemicals are applied to genital areas then these chemicals can act as a blockage for HPV transmission. The application of these chemicals to genital areas is better than sexual contact and these chemicals are known as topical microbicides [12-14].

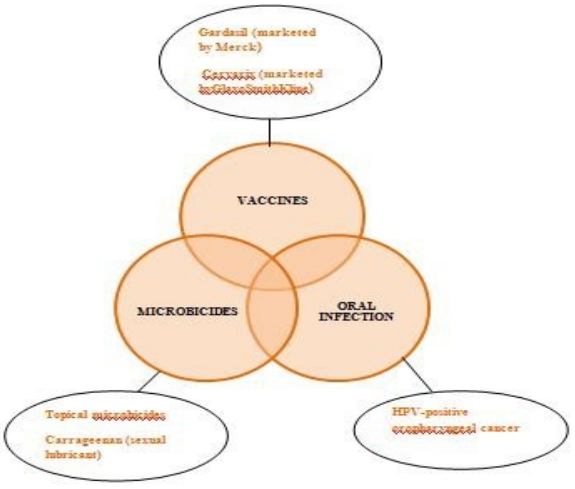

Figure22: Prevention from HPV infection

Many studies indicates 1.3% HPV16 is found in study subjects and the rate of carcinogenic HPV is 3.5% [15]. HPV positive oropharangeal cancers is a subtype of oropharangeal squamous cell carcinoma and it is also known as the HPV16+ oropharyngeal cancer or HPV+ OPC [16-18]. It has an association with HPV oral infection and this infection enhances the development of HPV+OPC. The rate of oral HPV infection is propotional to the rate of oral sex and non-sexual oral infection through salivary transmission and cross transmission [19-21]. The effects of HPV16 can be enhanced by Concomitant human herpesvirus-8 infection [22]. Risk factors comprehends increasingly number of sexual partners [23-25], anal-oral sex & oral-genital sex history [24,25], chronic periodontitis [26], history of female partner which an abnormal cervical dysplasia [24], genital warts history [25] and at first intercourse among men [23].

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