from 50 mg every 3 days to 100 mg daily. A complete remission (CR) rate of 56% was noted in this cohort, with CR defined as complete clearing of mucosal disease within 1 month of treatment onset and maintenance of this CR during the second month of treatment. All patients underwent a baseline sensory nerve action potential test before initiating thalidomide. Five of 16 patients subjectively reported transient peripheral neuropathy. There was objective evidence of mild length-dependent axonal sensory neuropathy in 2 of 16 patients, with treatment cessation occurring in an isolated case due to persistent neuropathy.

Conclusions: Within this cohort, thalidomide demonstrated a favorable efficacy/safety ratio with long-term use. It remains a viable treatment option for cases of refractory oral ulceration. Given the history of adverse effects associated with thalidomide, informed consent with regard to embryofetal toxicity and contraceptive counseling are pivotal to safe prescribing. Counseling with respect to other common adverse effects, including peripheral neuropathy and venous and arterial thromboembolism, is mandatory, and these adverse effects need to be understood.

XEROSTOMIA SYMPTOMS AND TREATMENT STRATEGIES ASSOCIATED WITH SALIVARY FLOWS

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Objectives: We sought to analyze the types and quantity of dry mouth products patients use as well as the reported dry mouth symptom severity and frequency in relation to salivary flows. We hypothesized that respondents with higher stimulated flow would report better responses to products that stimulate flow.

Methods: Patients with complaints of dry mouth who had documented unstimulated and stimulated whole salivary flows (UWS and SWS, respectively) completed a questionnaire to assess dry mouth products used, current symptoms, and response to therapy. Statistical analyses included descriptive analyses and associations between dichotomized (low/normal) salivary flow levels, and symptom severity was assessed using nonparametric Wilcoxon rank-sum tests.

Results: Eighty-seven patients completed the questionnaire; 38 patients had a diagnosis of Sjögren syndrome. More than half of patients (55%; n = 48) reported using 4 or more dry mouth products. The most common product used was water (n = 78), followed by rinses (n = 54) and lozenges (n = 48). Twenty-five patients (29%) reported use of parasympathomimetics. More than half (56%) of patients using parasympathomimetics reported that their mouth felt "much better" compared with less than one-third of patients using other methods: water (29%), gum (23%), lozenges (27%), candies (4%), rinse (26%), spray (24%), or gel (20%). Among parasympathomimetic users with normal SWS, 71% reported their mouth felt "much better" compared with 36% of those with low SWS. For water, gum, lozenges, candies, and sprays, greater than 50% of respondents reported improvement lasting less than 1 hour. Regarding rinses, gels, and parasympathomimetics, greater than 50% of respondents reported improvement lasting greater than or equal to 1 hour. The dichotomized level of UWS rate was not associated with any measures of symptom severity, whereas the low SWS rate was associated with the following measures: dryness of the mouth ($P = .004$), difficulty speaking due to dryness ($P = .03$), and difficulty swallowing due to dryness ($P = .004$).

Conclusions: Different treatment categories for dry mouth symptoms provided varying degrees of relief. Patients with normal vs low stimulated flow who used parasympathomimetics reported the greatest treatment response and longest relief of dry mouth symptoms. Assessment of salivary flow levels may be a useful guide for more targeted recommendations of dry mouth products.

COMPARISON OF THE IMMUNOLOGIC RESPONSE TO HERPES SIMPLEX VIRUS TYPE 1 ENTRY GLYCOPROTEINS INDUCED IN HUMANS AFTER PRIMARY INFECTION OF ORAL OR GENITAL SITES

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Objectives: We sought to determine potential differences in the humoral immune response to herpes simplex virus type 1 (HSV-1) in patients after primary infection in either oral or genital sites.

Methods: Serum samples from 20 patients with primary HSV-1 infection (10 oral, 10 genital) were compared. A neutralization assay categorized samples by their ability to inhibit virus entry into cells. An enzyme-linked immunosorbent assay determined the quantity of antibodies against each of the major HSV-1 glycoproteins (gD, gB, gC, gH/gL). Surface plasmon resonance imaging (SPRi) was used to estimate the quality of the response by determining the epitope specificity of antibodies against the receptor-binding glycoprotein gD. Information from these assays was combined to develop a comprehensive profile of immunologic response to HSV-1 infection.

Results: All 10 oral site serum samples contained significant levels of virus-specific antibodies to block virus entry and demonstrated excellent immune response to the major virion glycoproteins. In contrast, only 4 of the 10 genital site serum samples were able to block virus entry. The 6 genital site sera that failed to block entry had markedly reduced antiglycoprotein antibody levels, indicating a poor overall HSV-1 immunologic response. The quantity of antiglycoprotein antibodies in the 4 genital (protective) sera mirrored that induced by oral infection. Subsequently, SPRi was used to determine whether the qualitative response was equivalent between the oral and genital site sera. All 10 oral site sera targeted gD epitopes at levels significantly higher and more varied than those generated for the 4 protective genital site samples. Interestingly, the gD epitope profiles of the 6 nonprotective genital site samples were directed at a single non-neutralizing antigenic site on gD that is involved in cell-to-cell spread.

Conclusions: Based on a comprehensive profile of immunologic response to HSV-1 infection for individuals

infected at either oral or genital sites, results of this study suggest that the site of primary infection is important in driving the overall humoral immune-protective response. Findings of this study will have direct implications for the future development of a glycoprotein-epitope–based HSV-1 vaccine.

DISTRIBUTION OF HUMAN PAPILLOMA VIRUS 16 IN ORAL SITES AFFECTED BY SQUAMOUS CELL CARCINOMA

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Objectives: Studies have indicated that cases of HPV-associated squamous cell carcinoma (SCC) in the oropharynx and the oral cavity are on the rise. However, the distribution of human papilloma virus (HPV) in different sites of the oral cavity affected by oral SCC (OSSC) has not been well characterized. The present study was designed to investigate the anatomic sites of HPV-16 infection associated with OSCC in the oral cavity and correlate HPV-16 positivity with tumor suppressor gene expression and clinical/pathologic features of OSCC.

Methods: The archives of oral pathology at the University of Florida College of Dentistry were accessed for demographic, clinical, and histologic data of 97 OSCC cases, and their histologic slides were obtained under the approved institutional review board protocol. Histologic specimens were stained for HPV-16 by immunohistochemistry (IHC), and the positive samples were further analyzed for HPV DNA by in situ hybridization (ISH).

Results: Ninety-seven patients with OSCC comprising 53 (54.63%) males and 44 (45.36%) females with ages ranging from 40 to 95 years were included. Twenty (20.6%) had a history of smoking, and 16 (16.49%) drank alcohol; the information for the rest of the sample was unavailable. The oral sites of OSCC include the following: gingiva 34 (35%), palate 25 (25.77%), tongue 16 (16.49%), buccal mucosa 14 (14.43%), and floor of the mouth 8 (8.24%). The degree of OSCC differentiation showed 34 (35%) for well differentiated, 32 (32.98%) for moderately differentiated, and 31 (31.95%) for poorly differentiated. Of 14 p16-positive cases detected by IHC (14.43%), 12 (85%) were positive for ISH specific for HPV DNA. The tongue and the palate showed the highest prevalence of HPV-related OSCC (4 of 16 [25%] and 6 of 25 [24%], respectively), followed by the gingiva (4 of 34 [12%]). Strong positivity for p16 detected by IHC and HPV DNA by ISH was found in well and moderately differentiated OSSC (7 of 34 [20%] and 5 of 32 [15%], respectively).

Conclusions: Our study identified 14% of cases of OSCC to be associated with HPV, with the tongue and the palate being the most prevalent sites. This finding may indicate that the route of the viral transmission for OSCC may be similar to the one associated with oropharyngeal cancer.

ANTIFUNGAL DRUG SUSCEPTIBILITY OF FUNGAL ISOLATES IN PATIENTS WITH HUMAN IMMUNODEFICIENCY VIRUS RECEIVING HIGHLY ACTIVE ANTIRETROVIRAL THERAPY

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Objectives: Given the evolving drug therapy options and consequent opportunistic infections, antifungal drug resistance is a major concern in patients with human immunodeficiency virus (HIV) undergoing highly active antiretroviral therapy (HAART), prompting the need for clinically relevant antifungal susceptibility testing. The goals of the present study were to determine the asymptomatic oral fungal carriage and species distribution in patients with HIV infection receiving HAART in Kerala State, India, and to evaluate the antifungal susceptibility/resistance profile of these oral fungal isolates. We also sought to identify any correlation between antifungal susceptibility/resistance with respect to the duration of HAART therapy and if there was an association between oral fungal colonization, CD4 counts, and risk factors.

Methods: Thirty HIV-positive patients receiving HAART were divided into 2 groups based on duration of HAART (group 1, <2 years; group 2, >2 years). A detailed history, including demographic characteristics, treatment details, and presence of any risk factors for candidiasis, was taken before saliva sample collection by the oral rinse method. Candidal growth and colonies were evaluated on the Sabouraud slope. Germ tube, sugar assimilation, and fermentation tests were used for identification of species. When conventional methods failed to identify any fungal isolates, they were verified using the automated VITEK-2 YST system (bioMérieux, Marcy l'Etoile, France). The Wilcoxon signed-rank test was used to compare the $CD4^+$ lymphocyte count before and after initiation of HAART. The association of risk factors with candidiasis was analyzed using the chi-square test.

Results: Overall culture positivity was 83.3%. *Candida albicans* was the most prevalent species (57.7%), followed by *Candida tropicalis* (26.9%). All except for 1 patient had a single fungal isolate. In vitro antifungal susceptibility testing of the isolates revealed that all candidal species were sensitive to amphotericin B. *Candida krusei* showed 100% resistance to fluconazole. All candidal species except *Geotrichum klebahnii* showed increased resistance to itraconazole. Comparison between initial and recent $CD4^+$ counts revealed improvement in the $CD4^+$ count after HAART, but no change in fungal population. Of the study sample, 63.3% had risk factors for candidiasis other than being immunocompromised, and colonization was increased in those with risk factors compared with those without risk factors.

Conclusions: The present study showed the distribution of yeast species and the antifungal drug susceptibility of fungal isolates in patients with receiving HAART.

ASSOCIATION OF PSYCHOSOCIAL STRESS AND TEMPOROMANDIBULAR DISORDERS IN THE ADOLESCENT POPULATION

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Objectives: Research has shown an increasing number of adolescent patients who present with somatization of pain disorders. The importance of assessing a patient's psychological and behavioral status in diagnosing temporomandibular disorder (TMD) has been explored in adults; however, its application in adolescents is unclear. The objectives of this study are to determine the association between psychosocial stress and TMD