Conclusion: The intensification of the anti-tobacco legislation and campaigns in South Africa might have contributed to the slightly declining incidences of oral and pharyngeal cancer. Contrary to data reported in the United States and Europe, there is no indication of a rise in HR-HPV driven oropharyngeal cancers over the period 1998-2013 which could indicate that South Africa is lagging behind in the HR-HPV related carcinoma epidemic.

SYSTEMIC DRUG-INDUCED ORAL HYPERPIGMENTATION: SYSTEMATIC REVIEW.

DR. NADA BINMADI, DR. MARAM BAWAZIR, DR. SOULAFA ALMAZROOA. KING ABDULAZIZ UNIVERSITY, FACULTY OF DENTISTRY

Background and Objective: Oral hyperpigmentation was associated with many systemic therapeutic drugs. The mechanism of tissue pigmentation by drugs usage is quite variable and non-specific. However, resolution of the discoloration was proven to occur after the suspected drug withdrawal in majority of cases. Most of the published reports on a causal relation evidence between medicinal drugs and oral hyperpigmentation are based on individual case studies or repeated observations. Evidence-based literature is rarely found to prove this causal relation.

The aim of this systematic review of literature is to provide a causal relation evidence between medicinal drugs and their adverse reaction presented as oral/mucosal pigmentation.

Study Designs: A systematic review and analysis of literature was conducted using PubMed, ScienceDirect, Scopus and ProQuest. Original articles, written in English and published till December 2017, were included in the analysis.

Findings: A total of 206 articles were found of which, 49 observational studies were eligible for inclusion in the analysis. In these studies; antimalarial medications, chemotherapeutic medications, and antibiotics were significantly associated with oral hyperpigmentation.

Conclusion: Medication use was significantly associated with oral/mucosal hyperpigmentation in older adults. The risk of oral pigmentation was greatest for antimalarial medication used for immune-mediated diseases and certain chemotherapeutic agents. Future research should develop a risk score for medication-induced oral pigmentation to assure the patient during prescription and management of these medications.

ORAL RADIOGRAPHIC FINDINGS IN SICKLE CELL DISEASE PATIENTS.

DR. HUSSAIN DASHTI[A], DR. AREF GHAYYATH[A], DR. MARIAM BAGHDADY[A], DR. HASSAN AL-JAFAR[B]. [A] UNIVERSITY OF KUWAIT, [B] KUWAIT MINISTRY OF HEALTH

Sickle cell disease causes vascular microinfarcts that lead to multi-organs alterations including dental involvements. Teeth, oral structures, and maxillofacial bones are affected. Dental alterations of oral and maxillofacial bones are of anatomical, radiographical, and structural significance. Due to compensatory hematopoiesis, hemolysis, and vaso-occlusive events in the maxilla and mandible, bony changes are noticed radiographically in SCD patients. Seven oral radiographic features were reported in the literature among SCD patients: large trabecular spaces, increased medullary spaces, thinning of the inferior mandibular border (osteoporosis), interproximal alveolar bone staircase pattern, thickening of lamina dura, resorption in alveolar bone, and radiopacities/osteosclerosis. Mandibular Hypo-vascularity can induce osteomyelitis and osteonecrosis in SCD patients. Mandibular osteomyelitis can be followed by osteosclerosis (radiopacities) if proper healing is achieved. In this study, we obtained multiple radiographs of 35 SCD patients to 1)determine the common radiographic features seen in SCD patients and 2) assess the seven radiographic features reported in the literature.

Results: Some SCD patients demonstrated more than one radiographic feature, while other SCD patients manifest no radiographic findings. The most common feature was the staircase pattern and the least common was osteoporosis. A detailed table of the number of SCD patients presented with notable radiographic features is presented in this poster, in addition to a comparison between the common and uncommon features.

Conclusion: not all SCD patients demonstrate oral radiographic findings, and among the oral radiographic findings reported in the literature, some features are more common than others. Hopefully, 50 or more SCD patients will be included in the study for further evaluation. Furthermore, an equal number of radiographs of competent patients will be examined randomly from Kuwait University's bank of radiographs to serve as a control group. Therefore, we will be able to determine if the reported oral radiographic features are suggestive of SCD or not.

OPTIMIZATION OF DIAGNOSTIC IMMUNOHISTOCHEMISTRY OF FORMALIN-FIXED, PARAFFIN-EMBEDDED TISSUES.

DR. FATMA ALKASSIMI, DR. SAEED UR RAHMAN, DR. PRAVEEN ARANY. UNIVERSITY AT BUFFALO, THE STATE UNIVERSITY OF NEW YORK

Objective: Immunohistochemistry (IHC) is a widely used diagnostic technique in the Oral and Maxillofacial Pathology. Various variables affect results of the IHC technique. Therefore, standardization and optimization of the IHC technique are essential in generating reliable and reproducible results. The aim of this study was to determine the optimal conditions for IHC staining of multiple antibodies with minimal background.

Findings: In our study, we noticed that 2% hydrogen peroxide (H2O2) is most effective to block endogenous peroxidase activity. Formalin-fixed, Paraffin-embedded tissues from mice and human biopsies were subjected to IHC with three different monoclonal chimeric antibodies. Various combinations of antibody concentrations and incubation time were investigated. Two secondary antibody kits namely Vectastain Universal ABC-AP KIT (PK-6200) and Alkaline Phosphatase Universal (AK-5200) as well as two chromogen systems namely ImmPACT DAB EqV (Chromogen and peroxide) and Alkaline Phosphatase substrates were used. The optimal concentration of individual antibodies varied greatly (From 1 to 20 μg/ml) based on their affinity to the primary antigen. While the manufacturer instructions recommend 30 minutes incubation for all primary antibodies, we observed overnight incubation at 4oC obtained best results. The optimal counterstain with peroxidase (brown) substrate was Hematoxylin and Alkaline Phosphatase (blue) substrate was Nuclear Fast Red. Digital imaging parameters such as white balance, exposure time and file format were optimized. Evaluation of the IHC results was performed using the light microscope and digital imaging.

Conclusion: Overall, our results confirm careful validation of individual IHC technique is critical in obtaining

consistent and reproducible results. Factors such as endogenous peroxidase blocking, antibody concentration and incubation time, chromogen system and counterstains are important parameters that should be optimized for individual studies.

EXPRESSION OF THE CANCER STEM CELL MARKER ALDH1 IS INCREASED IN THE BUDDING AREA OF ORAL SQUAMOUS CELL CARCINOMA.

DR. GIOVANNA RIBEIRO SOUTO[A], DR. HELVÉCIO MARANGON JUNIOR[B], MS. VICTÓRIA VASCONCELLOS MOREIRA MELO[A], MS. ÂNGELA BRAGA CAIXETA[A], DR. PAULO EDUARDO ALENCAR SOUZA[A], DR. MARIA CÁSSIA FERREIRA AGUIAR[C], DR. MARTINHO CAMPOLINA REBELLO HORTA[A]. [A] SCHOOL OF DENTISTRY, PONTIFICAL CATHOLIC UNIVERSITY OF MINAS GERAIS, [B] CENTRO UNIVERSITÁRIO DE PATOS DE MINAS, [C] SCHOOL OF DENTISTRY, FEDERAL UNIVERSITY OF MINAS GERAIS

Objectives: This study aimed to evaluate the expression of the cancer stem cell marker ALDH1 and its association with tumor budding, a morphological marker of cancer invasion, in oral squamous cell carcinoma (OSCC).

Findings: 163 OSCC samples were obtained by incisional biopsies. Immunohistochemistry was performed to detect positive cells for ALDH1 (cancer stem cell marker) and for AE1/AE3 (multi-cytokeratin to identify OSCC cells in tumor budding evaluation). A positive expression of ALDH1 was observed in 47.24% of the samples. In the tumor budding evaluation, samples were classified as low-or high-intensity tumor budding. Association between the ALDH1 expression and tumor budding was assessed using the chi-square test. However, no association was observed ($p>0.05$). In samples with high-intensity tumor budding, differences in the ALDH1 expression between the budding area and the area outside the budding were evaluated using the McNemar test. The ALDH1 expression was higher in the budding area than in the area outside the budding ($p<0.05$).

Conclusion: The findings reinforce the idea that cells at the tumor budding area show phenotypic characteristics of cancer stem cells. The debate concerning the model of oral carcinogenesis by cancer stem cells was also strengthen. Supported by FAPEMIG (APQ-01806/14 and PPM-00653-16).

MESENCHYMAL CHONDROSARCOMA OF THE MAXILLA: A CASE REPORT AND REVIEW OF THE LITERATURE.

DR. MARK LERMAN. TUFTS UNIVERSITY

Mesenchymal chondrosarcoma (MCS) is a rare subtype of chondrosarcoma accounting for less than 2% of all chondrosarcomas, first described by Lichtenstein and Bernstein in 1959. The majority develop as intraosseous lesions, and the jawbones are among the most common primary sites. The peak incidence is between ages 10-30. In this report, we present a case of MCS diagnosed in the maxilla and review the literature for previously reported cases. A 20-year-old female presented to oral and maxillofacial surgery with a five-month history of sinus congestion. A panoramic radiograph demonstrated a diffuse radiopacity of the right maxillary sinus and a CT scan revealed extension of the lesion to the orbit. A biopsy exhibited a proliferation of cells with basophilic cytoplasm varying in appearance from round to spindled. Numerous atypical mitotic figures were noted and foci of chondroid material were scattered throughout the lesion. Immunohistochemical studies revealed diffuse reactivity of the cellular proliferation with CD99 and positivity of S-100 within the cartilaginous tissue. These findings were consistent with a diagnosis of mesenchymal chondrosarcoma and genetic studies confirmed HEY1-NCOA2 fusion to support the diagnosis. The patient was referred to a sarcoma center for further management. The literature was reviewed for previous cases of MCS of the maxilla. Including the current case, there are 41 cases with a male: female ratio of 1:1.4. The age at diagnosis ranged from 9-83 years with a mean age of 30 years and median age of 26 years.

MCS is a rare high-grade malignancy with a ten-year survival of 10-54%. While some studies have suggested that MCS of the jawbones may have an improved prognosis compared to those originating in other sites, others have disputed that finding. Familiarity with the radiographic and histopathologic features of MCS may aid in the diagnosis of this rare sarcoma.

PHEOPHORBIDE A-MEDIATED PHOTODYNAMIC THERAPY INDUCED ENDOPLASMIC RETICULUM STRESS, LEADING TO INDUCTION OF APOPTOSIS IN HUMAN ORAL SQUAMOUS CARCINOMA CELLS.

PROF. JUNG-HOON YOON[A], PROF. JUN LEE[B]. [A] DEPARTMENT OF ORAL AND MAXILLOFACIAL PATHOLOGY, COLLEGE OF DENTISTRY, WONKWANG BONE REGENERATION RESEARCH INSTITUTE, DAEJEON DENTAL HOSPITAL, WONKWANG UNIVERSITY, DAEJEON 35233, REPUBLIC OF KOREA, [B] DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY, COLLEGE OF DENTISTRY, WONKWANG BONE REGENERATION RESEARCH INSTITUTE, DAEJEON DENTAL HOSPITAL, WONKWANG UNIVERSITY, DAEJEON 35233, REPUBLIC OF KOREA

Photodynamic therapy (PDT) has been developed as an therapeutic alternative for malignant tumors that uses a photosensitizer. Our group recently synthesized a photosensitizer Pheophorbide a (Pa) from chlorophyll-a. However, the molecular mechanisms by which it causes anti-cancer activity in oral squamous cell carcinoma (OSCC) are not well understood. Here, we showed that Pa-PDT inhibited effectively the proliferation of FaDu cells. Flow cytometry and western blot showed that Pa-PDT induced intrinsic apoptosis cell death pathways in FaDu cells. Next, we checked Pa-PDT induced ER stress in FaDu cells that it was observed as demonstrated by accumulation of the ER stress marker. Pa-PDT also induced autophagy in FaDu cells was evidenced by the increased levels of the autophagic protein marker expression. Inhibition of ER stress pathway using 4-phenylbutyric acid (PBA) 1mM decreased CHOP, with induced inhibition of cell deaths. Also, the inhibition of ER stress enhanced Pa-PDT mediated autophagy. This result suggest that Pa-PDT induced ER stress trigger apoptosis and inhibition of ER stress decreased Pa-PDT mediated cytotoxicity through an increase of autophagy. This study was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (No. NRF-2016R1D1A1B01006388).