HIV and Oral Health in the Era of Antiretroviral Therapy
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- This slide set has been peer-reviewed to ensure that there are no conflicts of interest represented in the presentation.
Objectives

- Identify the current demographics of HIV/AIDS and infections rates
- Understand the change in oral health needs in the Era of ART therapy
- Evaluate common oral manifestations related to HIV
- Understand current therapies for oral conditions
HIV in the United States

Rates of HIV diagnoses per 100,000 people.
Florida has an **EPIDEMIC**

- Had 6,240 new cases of HIV infections in 2015 — the highest number for a single year since 2002.

- Has seen yearly increases in HIV cases for four consecutive years.

- Has two counties — Miami-Dade and Broward — that ranked No. 1 and No. 2 in the nation for the rate of new HIV infections per 100,000 residents.

- Has an African-American population, in particular, that has been dramatically affected by HIV. In 2014, blacks accounted for 47 percent of those living with HIV in Florida.

- Highest number of new Aids Cases in the nation

- 2\textsuperscript{nd} highest number of pediatric AIDS Cases
Figure 1
Florida DIAGNOSED Cases of HIV Infection 2010–2015

DATA FOR DIAGNOSIS YEARS: The most recent year-end or mid-year information is used to update diagnosis data for ALL years. These data are AFTER the deduplication process.

Data as of June 30, 2016
2% increase in new cases
Oral Health and HIV

• 32-46 percent of PLWHA will have at least one major HIV-related oral health problem.

• 58-68 percent PLWHA do not receive regular health care.

• Barriers PLWHA face in receiving oral health care include lack of insurance, limited incomes, lack of providers, stigma, and limited awareness.

• Poor oral health can impede food intake and nutrition, leading to poor absorption of HIV medications and leaving PLWHA susceptible to progression of their disease.¹

• HIV medications have side effects such as dry mouth, which predisposes PLWHA to dental decay, periodontal disease, and fungal infections.

Accessed March 28, 2016
Oral Health and HIV

- Bacterial infections (i.e., dental decay and periodontal disease) that begin in the mouth can escalate to systemic infections and harm the heart and other organs if not treated, particularly in PLWHA with severely compromised immune systems.

- A history of chronic periodontal disease can disrupt diabetic control and lead to a significant increase in the risk of delivering preterm low-birthweight babies.

- Poor oral health can adversely affect quality of life and limit career opportunities and social contact as result of facial appearance and odor.
Oral Manifestations of HIV

Significance of Oral Manifestations

• First sign of clinical disease
• Signify disease progression
• Signify possible ART failure
• Effects on medication adherence and nutrition
Oral Manifestations of HIV

Dental expertise is necessary for proper management of oral complications in HIV infection and AIDS.

The manifestation of oral lesions during the course of HIV infection holds distinct connotations at different stages of the disease.

For individuals with unknown HIV status, oral manifestations may suggest possible HIV infection, although these are not diagnostic of infection.

For persons living with HIV disease who are not yet on therapy, the presence of certain oral manifestations may signal the progression of HIV disease.

For patients on antiretroviral therapy, the presence of certain oral manifestations may signal an increase in the plasma HIV 1 RNA level.

S Sethi, DN Kiran, G Popli, A Malhotra, A Bansal... - 2016 - recentscientific.com
Oral Manifestations of HIV

In the Era of ART

**Decreasing:**
- Candidiasis
- Necrotizing Gingivitis
- Kaposi’s Sarcoma
- Oral Hairy Leukoplakia

**Increasing:**
- Dental Decay/Periodontal Disease
- Oral HPV
Oral Manifestations of HIV

Oral candidiasis and oral hairy leukoplakia appear to be the first and the second most common oral opportunistic infections associated with HIV.
Oral Manifestations of HIV

Fungal: Candidiasis, Cryptococcus, Histoplasmosis, Aspergillosis

Viral: Herpes simplex virus, Oral hairy leukoplakia, Human papilloma virus, Cytomegalovirus

Bacterial: Bacterial angiomatosis, Syphilis, Periodontal Diseases linear erythematous gingivitis, necrotizing ulcerative periodontitis, necrotizing stomatitis.
Oral Manifestations of HIV

Neoplasms: Kaposi’s sarcoma, Non Hodgkin’s Lymphoma
Immunological: Major Aphthous Ulcers

Xerostomia: Salivary Gland Disease, Pain syndromes, Nutritional
Dental Decay

Factors that Increase Dental Decay

- Xerostomia is moderate to severe in 30-40% living with HIV/AIDS
- Xerostomia is caused by many medications used to treat HIV and comorbidities related to both HIV and aging
- In addition, the HIV virus effects the salivary glands, leading to salivary gland deformities and damages that also decrease salivary flow.
- Diet
- Substance Abuse
- Increased Life Expectancy
Salivary gland disease associated with HIV infection (HIV-SGD) can present as xerostomia with or without salivary gland enlargement (parotid gland).

HIV-infected patients may also experience dry mouth in association with taking certain medications that can hinder salivary secretion, such as antidepressants, antihistamines, and anti-anxiety drugs.

Parotid Gland Enlargement: reported to occur in 1-10% of HIV infected patients it is usually secondary to the development of benign lympho-epithelial cysts.

Benign Lympho-epithelial Cysts: A rare manifestation of HIV disease characterized by bilateral parotid swelling.
What can we do?

An increase in caries can occur, so fluoride rinses (that can be bought over the counter) or prescription fluorides should be used daily, and visits to the dentist should occur two to three times per year.

**OTC products (.05% NaF) ACT, Fluoroguard**

**Prescription Fluoride Products Neutral Sodium Fluoride administered by brushing or custom fluoride trays.**

Salivary stimulants such as sugarless gum or sugarless candies may provide relief.

Candies that are acidic should be avoided as frequent use may lead to loss of tooth enamel.

Increase intake of water

**Salagen 5mg/ Take 1 to 2 tablets 3 to 4 times per day. Maximum dosage 10mg 3 times per day**

Many contraindications including glaucoma, hepatic impairment, heart, lung, etc. Follow prescribing instructions.

**Home Care Instructions**

Brush, Floss, Tongue Scraper

Work in Collaboration with Dentists Mental Health Professionals and Case Managers
Periodontal Disease

Links between Periodontal Disease and other disease states/ Diabetes/ Heart Disease/ Strokes
Periodontal Disease in the Era of ART

Shift of prevalence towards periodontal diseases.

Lack of oral hygiene determined by plaque formation and reduced CD4-counts with pronounced periodontal inflammation can be seen as risk factors for periodontal disease. There is an increase in periodontal inflammation markers in patients with HIV.

Increased Prevalence of oral lesions and periodontal diseases in HIV-infected patients on antiretroviral therapy.

Overall high prevalence of manifestations underlines the importance of oral examination for the general practitioner and visits by oral specialists should become a routine procedure in HIV-patients care.

Periodontal Disease

Linear Erythematous Gingivitis This entity appears as a 1-3mm band of marginal gingival erythema, often with petechiae. It is typically associated with no symptoms or only mild gingival bleeding and mild pain.

Histological examination reveals and incomplete or aborted inflammatory response with principally hyperemia present.

Oral rinsing with chlorhexidine gluconate 0.12% often reduces or eliminates the erythema and typically requires prophylactic use to avoid recurrence.
What can we do?

Periodontal Disease

• Amoxicillin 250mg 3x/day with Metronidazole 250mg 3x/day x 5-7 days
• Antimicrobial rinses (0.12% Chlorhexidine) 15cc 2x/day x 14 days
• Concurrent Antifungal maybe necessary
• Referral for immediate dental care
• Stress oral home care for clients and routine dental care
Oral Manifestations of HIV

Human Papilloma Virus

• About 7% of Americans have oral HPV. That’s far fewer than the number who have the genital version, which is the most common sexually transmitted disease in the U.S.
• Every day in the US, about 12,000 people ages 15 to 24 are infected with HPV. Approximately 26 million Americans on any given day have an oral HPV infection. Of those approximately 2600 are HPV16 the strain that can lead to oral cancer.
• The vast majority of individuals will clear the virus naturally through their own immune response, and never know that they were exposed or had it.

Human Papilloma Virus

More than 40 types of HPV can infect people, but only a few cause cancer. One of the types that causes most cervical cancers, called HPV16, is also linked with most HPV-related head and neck cancers. Oral warts are caused by human papillomavirus (HPV) and may appear anywhere within the oral cavity or on the lips. They occur more frequently and more extensively in people with HIV infection than in those with normal immune function, especially in patients with advancing immune suppression (CD4 counts of <200-300 cells/µL). Oral warts may be refractory to therapy. The frequency of oral warts may increase, at least temporarily, in patients treated with antiretroviral therapy.

Human Papilloma Virus

- Possible spread through Oral Sex and French Kissing

http://saude-joni.blogspot.com/2012/02/hpv-oral.ht
New England Journal of Medicine (NEJM), shows that men and women who reported having six or more oral-sex partners during their lifetime had a nearly nine-fold increased risk of developing cancer of the tonsils or at the base of the tongue.

Review recent CD4 counts in patients with oral warts, the CD4 count usually is <300 cells/µL. Treatment is difficult, as these lesions tend to recur.

- **Condoms do not protect from HPV**

Oropharyngeal Candidiasis (OPC)

The most common HIV related oral lesion is Candidiasis, predominantly due to infection by Candida albicans.

Non albicans species such as C. glabrata, C. tropicalis, C. krusei and C. kefyr have been reported in 1% to 20% of HIV infected patients.

It is often the initial manifestation of symptomatic infection with HIV, and may simply imply concurrent esophageal candidiasis, which is an AIDS indicator lesion, or also be a predictor of the likelihood of other opportunistic infections.

Pseudomembranous candidiasis: Acknowledged as the most common variant, it presents as creamy, white, curd-like plaques on the oral mucosa or tongue which can be wiped away, leaving a red erythematous surface. Patients may complain of soreness or burning in the mouth.
Oropharyngeal Candidiasis (OPC)

Erythematous candidiasis: It presents as a red, flat, subtle lesion on the dorsum of tongue. A kissing lesion occurs when the lesion present on the tongue has a matching counterpart on the hard or soft palate where it comes in contact. The lesion is often symptomatic, with burning mouth sensations.
Oropharyngeal Candidiasis (OPC)

Hypertrophic Candidiasis: Thick white plaques that cannot be readily removed may indicate the presence of hyperplastic candidiasis. This may occur concurrently with oral hairy leukoplakia.

Angular Cheilitis: It presents as cracking, fissuring, ulceration or erythema of the corners of the mouth, and may occur with or without the presence of erythematous or pseudomembranous candidiasis. It tends to persist for long periods of time without treatment.
Oropharyngeal Candidiasis (OPC) Treatment

Early treatment of oral candidiasis is warranted not only because of the discomfort caused by the lesions, but also because the foci may act as reservoirs of organisms for local spread of disease.

It takes longer to eradicate candidiasis in HIV infected population, and relapse rates are high.

High fungal counts and smoking appear to increase the tendency for poor response.

Use of topical agents for treatment of OPC is recommended as initial therapy, more so owing to concerns of drug interactions between systemic antifungals and antiretroviral therapy.
HPV vaccine is recommended for routine vaccination at age 11 to 12 years.

Recommends vaccination for females aged 13 through 26 and males aged 13 through 21 years not vaccinated previously.

Vaccination is also recommended through age 26 years for men who have sex with men and for immunocompromised persons (included those with HIV infection) if not vaccinated.

www.cdc.gov/mmwr/preview/mmwrhtml/mm6411a3.htm
Oropharyngeal Candidiasis (OPC) Treatment

Topical antifungal agents include nystatin, clotrimazole, amphotericin B which can be delivered as oral suspensions, troches or tablets. Systemic therapy with ketoconazole, fluconazole, or itraconazole is indicated in recurrent cases.

Recommend 200mg once daily oral dose of Nizoral (ketoconazole) for resolution of oral signs and symptoms. Although fluconazole is an effective mucosal antifungal drug, candidal recurrence and resistance to fluconazole appear to be an emerging problem.

Oral Hairy Leukoplakia

Hairy leukoplakia (also known as oral hairy leukoplakia, or HIV-associated hairy leukoplakia), is a white patch on the side of the tongue with a corrugated or hairy appearance. It is caused by Epstein-Barr virus (EBV) and occurs usually in persons who are immunocompromised especially those with HIV/AIDS. This white lesion cannot be scraped off. The lesion itself is benign and does not require any treatment, although its appearance may have diagnostic and prognostic implications for the underlying condition.

http://diseasespictures.com/oral-hairy-leukoplakia
Walling DM 2003 (PMID 12964120) Moura MD 2010 (PMID 20813564)
Oral Hairy Leukoplakia

It is diagnosed by the clinical appearance as asymptomatic, adherent, flat or vertically correlated whitish grey lesions on dorsum of tongue, usually on lateral borders.

They often have a shaggy, corrugated or “hairy” appearance. These have been associated with immune suppression, as evidenced by reduced CD4+ cell counts and viremia measured by high HIV RNA level in plasma. These lesions have been shown to predict progression to AIDS even independent of CD4+ count.

Self-limiting and generally requires no treatment.
Oral Hairy Leukoplakia

**Diagnosis**

- **Clinical findings**
  - Biopsy-cellular nuclear changes (acanthosis, Cowdry type A inclusions, ground glass and nuclear beading), absence of an inflammatory infiltrate, regions of ballooning cells, and epithelial hyperplasia

**Treatment**

- Usual resolution with ARV
- Valacyclovir
- Podophyllin resin combined with acyclovir cream
- Oral Hairy Leukoplakia is a manifestation of later HIV disease and an important sign of immunosuppression

Dental Recommendations for Treating HIV/AIDS Patients

- The magnitude of the viral load is not an indicator to withhold dental treatment for the patient. High viral loads may be present in a patient with early asymptomatic disease, while low viral loads can be seen in very advanced patients on suppressive antiviral therapy. Knowledge of these markers can tell the dentist the general health of the patient and the risk of progression.

- The dentist can play an important part in reminding patients of the need for regular follow up and monitoring of these markers. It is recommended that the CD4 and viral load determinants be done every three-six months.
<table>
<thead>
<tr>
<th>LAB TESTS FOR HIV STATUS</th>
<th>NORMAL RANGE</th>
<th>TREATMENT CONSIDERATION</th>
<th>MEDICAL SIGNIFICANCE</th>
<th>DENTAL SIGNIFICANCE</th>
<th>CRITICAL VALUES RECOMMENDED MEDICAL CONSULTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV VIRAL LOAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>If &gt; 20 copies per mL after 6 months of ARV therapy</td>
</tr>
<tr>
<td># of HIV RNA copies per ml of blood</td>
<td>Can be &lt;20 copies/mL on commercially available tests</td>
<td>If &gt; 20 copies/mL Should be under copies/mL if over 6 months on HAART</td>
<td>Indicates rate of HIV progression and HAART response</td>
<td>Predictor of oral manifestation including Candidiasis, Xerostomia, Recurrent Caries, cancer, etc.</td>
<td></td>
</tr>
<tr>
<td>CD4 HELPER T CELL COUNT</td>
<td>500-1,500</td>
<td>&lt;200 = AIDS Defining</td>
<td>Indicates immune status &amp; determines therapy irrespective of total lymphocyte</td>
<td>In general, HIV disease is progressing if the CD4 count is going down.</td>
<td>If &lt; 200 after 6 months of ARV therapy</td>
</tr>
<tr>
<td>T-lymphocytes/mm³ (absolute T-cell count)</td>
<td>HAART recommended for all HIV infected patients regardless of CD4 cell count</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANC (Absolute Neutrophil Count) NEUTROPHIL % X WBC COUNT</td>
<td>1500 to 8000</td>
<td>&lt; 500 requires premedication</td>
<td>Susceptibility to infection</td>
<td>Susceptibility to infection</td>
<td>&lt; 2,500/mm³</td>
</tr>
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Number and Percentage of Persons Diagnosed and Living with HIV (PLWH) Engaged in Selected Stages of the Continuum of HIV Care Florida

- **109,969**
  - HIV DIAGNOSED (PLWH) THROUGH 2014
  - 100% of PLWH

- **99,516**
  - EVER IN CARE
  - 90% of PLWH

- **78,124**
  - IN CARE/RETAINED IN CARE IN 2014
  - 70,287 (64%) of PLWH

- **74,218**
  - ON ART IN 2014
  - 67% of PLWH

- **64,230**
  - SUPPRESSED VIRAL LOAD (<200 COPIES/ML) IN 2014
  - 58% of PLWH

Number and Percentage of Persons Diagnosed and Living with HIV (PLWH) Engaged in Selected Stages of the Continuum of HIV Care

Florida Oral Health Care
Case Presentations

- 51 year old male/Caucasian
- Mode of Transmission/MSM
- On ART Therapy since 2005
- CD4 905
- <20 copies/ml
- Current Medication
  - Genvoya 1x day since December 2017
  - Percocet as needed
  - Acyclovir 1x day
  - Atripla 1x day since 2005 Previous
Case Presentations

- 56 year old Haitian male
- Mode of Transmission/ Heterosexual
- Education level <4th grade
- Date of Diagnosis 2012
- ART Therapy 2013
- CD4 185
- 3250 copies/ml
- Current Medication
  - Truvada
  - Prezcobix
  - Bactrim
  - Hydrochlorothiazide 12.5 mg
- Patient was currently virally suppressed September 2016 with CD4 284
Haitian Cultural/Ethnic Identity

- Preferred term(s): Haitian or Haitian American. Haitians in U.S. strongly resist acculturation, taking pride in preserving traditional cultural, spiritual, religious, and family values.

- At the end of 2013, there are an estimated 250,000 adults and children living with HIV in the Caribbean. Haiti accounts for 55% of all people living with HIV in the Caribbean. Haiti alone accounted for 59% of all AIDS-related deaths in the Caribbean. Haitian-born individuals make up approximately 2% of Florida’s total population.
Haitians are very expressive and tend to be loud.

With healthcare workers reserved and polite

Agree even when they disagree to avoid conflict with a person of perceived higher authority

Generally mistrust interpreters, prefer to use family members rather than friends to maintain confidentiality.

In the absence of family prefer to use professional interpreter with whom they have no relationship and will probably not see again.
- 80% of Haitians neither read nor write
- Health Education materials should be visual or oral
- Healthcare professionals can assess literacy by offering to clarify information
- Directly asking the patient if they can read or write is embarrassing and may make the pt. reluctant to ask for assistance
We are available for clinical consultations and trainings

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