Oral Health Care for the HIV+ Patient

David A. Reznik, DDS, Grady Health System
Learning Objectives

• Upon completion of this presentation, learners should be able to:
  – Adopt strategies to improve your communication with dental professionals in order to remove barriers to oral care for PLWHA.
  – Provide lab values to dental professionals that are important to ensuring the safe provision of oral healthcare services for your aging patients living with HIV.
  – Identify and manage oral lesions seen in association with HIV disease.
  – Discuss with your colleagues oral health myths (and actual best practices) related to the oral care of PLWHA.
2011 – Key Points

• Removing barriers to care for PLWHA by enhancing communication between medical and dental professionals.
  – What lab values are important and how can they be obtained?
• Understanding the consequences of aging with HIV and the impact on the provision of dental care.
  – Cardiovascular disease, liver disease, end-stage renal disease, hip prosthesis, etc.
2011 – Key Points

• Reviewing proper recognition and management of oral lesions seen in association with HIV disease.

• Myth-busting
  – Use of ultrasonic scalers
  – Need to premedicate based on CD4 count and HIV viral load
Question #1

Treatment of candidiasis

A. Treatment should continue until the symptoms of candidiasis are gone (3 to 7 days)
B. Treatment of candidiasis should be for 10 days
C. Treatment of candidiasis should last for 2 weeks.
D. The answer depends on whether topical or systemic antifungal therapies are used.
Question #2

• A patient with a history of atrial fibrillation, which is being successfully managed with 5mg of warfarin/day is in need of a full mouth debridement. Which of the following statements is true

A. No alteration of anticoagulation is necessary for INR that is in therapeutic range (INR 2-3), given that local hemostatic measures are used.

B. The patient should stop taking warfarin 2 - 3 days prior to the appointment.
Question #3 Case Study

- 28-year-old HIV-infected male is in need of comprehensive dental care including two dental extractions, periodontal scaling and root planing and multiple dental restorations. His dental office calls to request clearance for these dental procedures and whether or not prophylactic antibiotics need to be prescribed.
Question #3 Case Study

• The patient does not have any other significant findings in his medical history with the exception of
  – *Pneumocystis* pneumonia two years ago.
  – Community acquired pneumonia two months ago.
  – Patient also presents with a moderate case of pseudomembranous candidiasis.
Question #3 Case Study

- CD4 count: 5 cells/mm$^3$
- VL: > 150,000 copies/mL
- Hg: 10.0 g/dl
- Platelet count: 75,000/mm$^3$
- Absolute Neutrophil Count (ANC): 1,000 cells/mm$^3$
Questions for Case Study

• The dental office is interested in obtaining medical “clearance”. Which of the following statements are true?

A. Any HIV infected patient with a CD4 count less than 100 cells/mm³ should be pre-medicated prior invasive dental procedures to prevent a bacterial septicemia.

B. The candidiasis should be treated prior to initiating dental therapy to prevent a fungal septicemia.

C. The decision to grant clearance should be based on the individual’s ability to withstand invasive dental procedures and on pertinent lab values such as platelet count, INR, absolute neutrophil count (ANC) and glucose. CD4 count and viral load do not have an impact on the provision of dental care.
Answers

1) A
2) A + B
3) C
Prevalence of Dental Caries, Periodontal Disease, and Oral Lesions in a Ryan White-funded Dental Clinic in the HAART Era

• The proportion of patients seen in the dental clinic within 3 years of HIV diagnosis was much higher after year 2000 than before 2000 (66.7% vs 34.3%, p=0.0014)
  – Median nadir CD4+ was 62 cells/μL (range: 97-464).
  – Median recent CD4+ cell count was 393 cells/μL (range 14-1091) with 55% having CD4+ count above 350 cells/ μL.
  – 76% had an undetectable viral load with 92% being on HAART.
Prevalence of Dental Caries, Periodontal Disease, and Oral Lesions in a Ryan White-funded Dental Clinic in the HAART Era

• Dental caries were present in 66% of patients.

• 54% had gingivitis, and 28% had periodontal disease.

• Fourteen patients (14%) presented with oral lesions including 7 patients (7%) with oral warts, 5 with oral candidiasis and 2 presented with an oral ulcer.

• Infectious Disease Society of America (IDSA) 47th Annual Meeting – November 2009 – Poster #1063
Conclusion

• Despite more aggressive and earlier dental care and improved immune response (CD4+>350 cells/μL in 55% of patients) and controlled viral load, the presence of dental caries, periodontal disease and oral lesions among HIV infected patients is still significant.

• Regular ongoing dental visits and treatment are critical to minimizing long-term oral health complications and improving oral health related quality of life for people living with HIV disease.
  – Deepa Reddy¹, Anitra Sumbry¹, David Reznik², Clifford Gunthel¹, Judy McGuire², Minh Ly Nguyen¹
    • ¹Emory University School of Medicine, ²Grady Health Systems, Atlanta, GA
  – Infectious Disease Society of America (IDSA) 47th Annual Meeting – November 2009 – Poster #1063
Early Linkage to Oral Healthcare after HIV diagnosis

• Inclusion criteria 196 HIV-positive individuals:
  – 66 newly diagnosed cases (out of oral care within 12 months of their HIV diagnoses)
  – Previously diagnosed controls (out of oral care and diagnosed with HIV between 1985-2007)
  – Historical controls (receiving regular oral care and diagnosed with HIV between 1985-2007).
Findings

• Persons who were newly diagnosed had significantly more teeth at baseline compared to the previously diagnosed and historical groups.

• Newly diagnosed individuals had less periodontal disease (attachment loss and less bleeding on probing).

• Previously diagnosed individuals had poorer gingival health and more broken teeth.

• The previously diagnosed group had the most dental decay.
Findings

• The higher levels of dental disease in the previously diagnosed group resulted in higher treatment costs.

• "Early dental intervention in the newly diagnosed HIV-positive individuals results in significant functional maintenance, more optimal oral health, and considerable financial savings."
  – IADR – March 2011- Jennifer Webster-Cyriaque DDS, PhD – UNC School of Dentistry
Dental Treatment Considerations

• Evidence-based research has proven that providing dental care for the vast majority of people living with HIV/AIDS is no different than providing care for the general patient population.
  
Dental Complications After Treating Patients With AIDS.

- **331 patients** (average CD4 count of 71 cells/mm$^3$) **1,800 invasive dental procedures** (defined as the breaking of the mucosal membrane) were performed.

- **RESULTS**: The number of post-procedural complications was only 17, representing an overall complication rate of **0.9%**

- **CONCLUSIONS**: Incidence of post-procedural complications is no greater than in other populations
Important lab values

- CD4 count
- HIV Viral Load
- Platelet count
- INR for patients on warfarin
- Absolute Neutrophil Count
- Glucose/ A1c
- Hemoglobin/hematocrit
Absolute Neutrophil Count

- Impact on the provision of invasive dental care:
- An Absolute Neutrophil Count <500 cells/mcl requires premeditation prior to invasive dental procedures.
  - Follow the American Health Association/ADA guidelines

Platelet count

- Normal – male/female: 150,000 – 450,000 per microliter (mcl) of blood
- Abnormal values of importance: < 20,000 platelets/mcl may lead to spontaneous bleeding

- Impact on the provision of invasive dental care: Dental procedures can safely be performed with a platelet count of 60,000 mcl or greater.

### Table 1. Pertinent Laboratory Information

<table>
<thead>
<tr>
<th>Lab Values</th>
<th>Normal, Male</th>
<th>Normal, Female</th>
<th>Abnormal Values of Importance</th>
<th>Impact on the Provision of Invasive Dental Care³</th>
<th>Need to Premedicate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 count</td>
<td>400 – 1,200 cells/mm³</td>
<td>500 – 1,600 cells/mm³</td>
<td>&lt; 200 cells/mm³ is an AIDS defining condition</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>HIV viral load</td>
<td>Undetectable</td>
<td>Undetectable</td>
<td>40 copies/μL, &lt;750,000 copies/μL</td>
<td>None, even at the highest levels</td>
<td>No</td>
</tr>
<tr>
<td>Platelet count</td>
<td>150,000 – 450,000 per microliter (mcl) of blood</td>
<td></td>
<td>&lt; 20,000 platelets/mcl may lead to spontaneous bleeding</td>
<td>Dental procedures can safely be performed with a platelet count of 60,000 mcl or greater.</td>
<td>No</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>14.0 g/dL – 17.4 g/dL</td>
<td>12.3 g/dL – 15.3 g/dL (nonpregnant women)</td>
<td>Anemia in men &lt;13 g/dL. Anemia in women &lt;12/g/dL</td>
<td>Periodontal and minor surgical procedures (e.g., single extraction) are usually routine for patients with hemoglobin level above 7 g/dL and no bleeding abnormalities</td>
<td>No</td>
</tr>
<tr>
<td>Hematocrit</td>
<td>40% - 52%</td>
<td>35% - 47%</td>
<td>Values that fall below the normal limit indicate anemia</td>
<td>Monitor hematocrit as excessively low values may indicate severe anemia</td>
<td>No</td>
</tr>
<tr>
<td>White blood cell count/absolute neutrophil count (ANC)</td>
<td>4,500 – 10,000 white blood cells/mcl</td>
<td></td>
<td>&lt; 1,000 white blood cells/mcl</td>
<td>May signify low absolute neutrophil count. An absolute neutrophil count &lt;500 cells/mcl requires premedication prior to invasive dental procedures.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: Normal lab values obtained from Medline Plus, a service of the National Institutes of Health.
Recommendations for patients on warfarin

• Current recommendations from the JADA based on review of published trial data are as the followings:
  – No alteration of anticoagulation is necessary for INR that is in therapeutic range (INR 2-3), given that local hemostatic measures are used.
  – Anticoagulation alteration is required if INR is >4.
  – INR >5 is contraindicated for surgical procedure.

• J Am Dent Assoc, Vol 134, No 11, 1492-1497. © 2003 American Dental Association
Recommendations
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• Procedures involved low-moderate risk of bleeding:
  – • Examples:
    • Simple restorative dentistry
    • Supragingival prophylaxis
    • Complex restorative dentistry
    • Scaling and root planning
    • Endodontics
  – • Safety profile based on INR:
    • INR <1.5-3:
      – Safe to proceed in a routine manner.
    • INR >3:
      – Not advised to do procedures. Need to refer to physician for adjustment of warfarin therapy.
Recommendations

- Procedures involved moderate risk of bleeding:
  - Examples:
    - Simple extraction up to 3 teeth
    - Curettage
    - Gingivoplasty
    - Removal of single bony impaction
    - Crown and bridge procedure
  - Safety profile based on INR:
    - INR <1.5-3.0:
      - Can be safe to proceed with judicious use of local hemostatic measures in some instances.
    - INR > 3.0:
      - Not advised to do procedures. Need to refer to physician for adjustment of warfarin therapy.
Oral Manifestations of HIV Disease: The Basics

• Oral manifestations of HIV infection are a fundamental component of disease progression.
• There has been a significant decrease in the overall prevalence of oral lesions from 47 – 85% pre-HAART to 32-46% post HAART.
• Factors, which predispose expression of oral lesions, include:
  – CD4 counts less than 200 cells/mm³
  – Viral load greater than 3,000 copies/mL
  – xerostomia (dry mouth)
  – poor oral hygiene
  – smoking
Oral Manifestations of HIV/AIDS

• For those with unknown HIV status, oral manifestations may suggest HIV infection, although they are not diagnostic.

Oral Manifestations of HIV/AIDS

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

Severe pain; 1 month duration; strong halitosis
Oral Manifestations of HIV/AIDS

• For persons living with HIV disease on antiretroviral therapy the presence of certain oral manifestations may signal a failure in therapy.

Case Study 1

- 42 year old African-American female presented to the Oral Health Center for routine dental work 04/04/07. She was originally diagnosed in 1999 with a CD4 count of 13 cells/mm$^3$. Reports health is within normal limits, no new symptoms. Spent most of the visit talking about a mutual friend.

- Against her providers recommendations, she stopped taking her antiretroviral therapy in the latter part of November 2006.

- Her last CD4 count, taken early in December 2006, was greater than 450 cells/mm$^3$. 
Case Study 1

• She returns to the Oral Health Center for her routine dental hygiene visit three weeks later. Again, she reports no changes in her general health and well-being.

• An oral exam revealed the following:
Case Study 1

- A new CD4 count was taken in 04/15/07.
- A thorough review of her lab values revealed that her CD4 count is now 43 cells/mm$^3$
- Working with her primary care provider and nurse educator we were able to convince her to restart therapy.
Studies from both the Americas and Europe report a decreased frequency of HIV-related oral manifestations of 10-50% following the introduction of ART.

Evidence suggests that ART plays an important role in controlling the occurrence of oral candidiasis.

The effect of ART on reducing the incidence of oral lesions, other than oral candidiasis, does not appear as significant.
Trends in Oral Manifestations

Advances in Dental Research 04/06
Hodgson TA, Greenspan D, Greenspan JS

- Increased prevalence of **oral warts** in patients on HAART has been reported from the USA and the UK.

- **HIV-related salivary gland disease** may show a trend of rising prevalence in the USA and Europe.

- A possible association between an increased risk of **oral squamous cell carcinoma** and HIV infection has been suggested by at least three epidemiological studies.
Conclusions

- Even with active antiretroviral therapy, OPC remains common in patients with advanced HIV/AIDS.
- C. glabrata has emerged as a significant cause of OPC episodes with decreased FLU susceptibility.

- IADR General Session – Barcelona, SP – 07/17/10

Redding DR, Kirpatrick WR, Erlandsen JE, Patel PK, Berg DK, Westbrook SD, Patterson TF, University of Texas Health Science Center at San Antonio, San Antonio, TX
Oral Warts due to HPV

- Published reports show a markedly increased incidence of oral warts in the HAART era * **
  
  * *Greenspan D, Canchola AJ, MacPhail LA, Cheikh B, Greenspan JS. Effect of highly active antiretroviral therapy on frequency of oral warts. Lancet 2001 May 5;357(9266):1411-2)
  
Oral sampling for HPV detection and genotyping in HIV-infected patients

- Predictors of multiple types OHPV infection included receptive oral sex, multiple sex partners and a history of anal warts.

- HR-HPV infection was associated with receptive oral sex (OR=3.21, p< 0.05) and a history of oral warts (OR=6.88, p< 0.05).

  - CD4+ count, viral load, smoking status, and number of sex partners were not predictive of HR-HPV infections

Case #2

- 40 year old African-American male presents for treatment of a lesion on the left posterior mandibular buccal mucosa with raised with fingerlike projections (1cm X 5mm X 4mm) on 04/10

- Diagnosis: oral wart secondary to HPV.
Case #2

- Present medications: Emtricitabine, tenofovir, darunavir, ritonavir, trimethoprim/sulfamethoxazole, azithromycin, Multivitamin.
- CD4 count 108 cells/mm$^3$; all other labs within normal limits.
- Lesion responds well to treatment and is no longer present at a follow-up visit on 05/10.
- Patient presents for routine care on 02/11
Case #2

- Present medications: Emtricitabine, tenofovir, darunavir, ritonavir, multivitamin
- Labs 01/27/11
  - ANC – 4,300
  - HGB 15.5
  - Platelet count 262
  - CD4 count 650 cells/mm$^3$
  - HIV VL undetectable
- Biopsy performed – results?
Case study #3

• 49 year old Caucasian male presents with a shallow ulcer approximately 1 cm in diameter on the maxillary anterior buccal mucosa – present 4 weeks – gray/yellow pseudomembrane - painful. Has been using Listerine and believes the ulcer is infected.

• Patient does have a hx. of recurrent aphthous ulcers, but has not had an episode similar to this in 10 years.

• Patient also has a history of lymphoma
Case study #3

- Initial diagnosis: recurrent aphthous ulcer
- Rx. dexamethasone elixir, metronidazole.
- CD4: 558 cells/mm³; VL undetectable; all other labs including ANC are normal.
- ART: nevirapine, saquinavir, ritonavir, DDI.

Visit 2: pain 3 on 0-10 pain scale. Swelling present. Raised borders – 8mm X 8mm
Rx systemic prednisone – 60 mg X 3 days; 40 mg X 7 days; 20 mg X 7 days
Idiopathic Oral Ulcer
Case study #3

• Visit 3; pain 4 on 0 – 10 scale – “does not feel smaller, but it seems smoother”. Patient states that the “pseudomembrane” peels off in the morning.

• Clinical exam reveals borders are no longer raised, ulcer is shallow. Dx: idiopathic ulcer somewhat responding to treatment.
Case study #3

• Visit 4: improvement continues, continued prednisone 20mg for an additional week.

• Visit 5: no pain reported, however clinical appearance is worse. Punch biopsy taken.
  – Results: acute and chronic inflammation with vaguely formed histiocytic microgranulomas.
    • Poorly organized epithelial histiocytes – unproven specificity and may be seen in chronic inflammatory diseases such as ulcerative colitis.
  – No evidence of lymphoma, no evidence of carcinoma. AFB negative, no fungal organisms.
Case study #3

• Visit 6: Symptoms return, prednisone restarted at 60 mg for 1 week. Crusting noticed on the margin closest to the lip. Acyclovir added as a precaution. Specimen taken to rule out MRSA. Patient noticed “rash/bumps” on scalp. Consider using thalidomide.

• Sexual history taken in dental setting.

• After consultation with primary care provider, a RPR is ordered primarily due to bumps on scalp and lack of a known reason for oral ulcer.
Case study #3

- Results of culture: MSSA+, resistant to trimethoprim/sulfamethoxazole and penicillin.
- Visit 7: RPR reactive 64 dilution; treatment initiated for syphilis.
Oral Ulcer due to Syphilis – 1 week into therapy
Oral Ulcer due to Syphilis – 3 weeks into therapy
Questions?

www.hivdent.org