SUGAR-COATING ORAL HEALTH: THINGS TO CONSIDER

JERRY A BROWN DMD, CDE

LEARNING OBJECTIVES

1. Describe the impact of Diabetes on oral health and list the oral disease entities involved.

2. Describe how oral pathology can affect glycemic control and discuss how dental treatment effects hyperglycemia.

3. Recognize the criteria for a dental referral upon conducting an assessment and describe the means by which dentistry and medicine can collaborate on patient-centered care.

DISCLOSURE INFORMATION for JERRY A BROWN DMD, CDE

• I have the following financial relationships to disclose:
  Speaker’s Network for: Colgate Oral Health

**“Oral health is essential to general health...”**


Table 3.1—Components of the comprehensive diabetes medical evaluation

| Fundoscopic examination |
| Thyroid palpation |
| Skin examination (e.g., for acanthosis nigricans, insulin injection or infusion set insertion sites) |
| Comprehensive foot examination |
| Inspection |
| Palpation of dorsalis pedis and posterior tibial pulses |
| Presence/absence of patellar and Achilles reflexes |
| Determination of proprioception, vibration, and monofilament sensation |

Dental Evaluation To Assess For Referral????????

Table 3.2—Referrals for initial care management

| Eye care professional for annual dilated eye exam |
| Family planning for women of reproductive age |
| Registered dietitian for MNT |
| DSME/DSMS |
| Dentist for comprehensive dental and periodontal examination |
| Mental health professional, if indicated |

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AADE16
• 47% of US Adults ≥ 30 have PD.
• HbA1C ≥ 9% 3X more likely to have PD than those without DM.
• 60% of children with DM age 6-11 2X more likely to have early signs of gingivitis.

Highly likely for us to see PWD who have Periodontal Disease!

Periodontal Disease And It’s Relationship To Diabetes

• The most well-researched systemic risk factor for periodontal disease is diabetes.
• A bi-directional relationship exists between these two inflammatory diseases.
• Evidence suggests that the presence of periodontitis can adversely affect metabolic (glycemic) control in patients with Diabetes Mellitus.

Diabetes & Periodontal Disease

• Poorly controlled diabetics are a risk-factor for periodontal disease.
• Altered wound-healing because of high glucose cellular environment (AGE’S).
• Impaired function of neutrophils, macrophages, and monocytes.
• Dysfunctional immune response is destructive.
• Impaired fibroblast function.
• Collagen degradation.

Dental Plaque → Bacterial Invasion

Impact of Periodontal Disease On Diabetes

• Elevated levels pro-inflammatory cytokines sulcus
• Cytokines released into systemic circulation
• Cytokines involved with insulin resistance.
Effect of PD on Diabetes-Related Complications

Gila River Indians
Baseline Periodontitis= HbA1C > 9.0% at > 2 yrs.

Gila River Indians with moderate-severe periodontitis, or edentulousness predicted development of nephropathy/ESRD in patients with little or no pre-existing kidney disease.

What Do I Look For???

• Do the gums, tongue, cheek, or floor of mouth appear red?
• Do you notice spontaneous bleeding or pus around gums?
• Are the roots of the teeth showing (Gum Recession)?
• Are there any missing teeth?
• Do any of the teeth have holes in them?

Effect of Periodontal Therapy On Glycemic Control

“...non-surgical periodontal treatment results in a mean reduction in HbA1C of 0.36%.”


What Do I Look For???

• Does the biting surface, or sides of the teeth appear: Broken? Brown/Black?
• Do any teeth feel loose (mobile)?
• Is there any complaint of pain/burning/swelling?
• Does the patient have bad breath?
• Are there any white/red patches on tongue, cheeks, floor of the mouth, or palate?

Healthy Gum Tissue
• Pink Gum Tissue
• Stippled Appearance
• No Swelling
• Probe Depth 3mm Or Less
• No Bleeding When Probing

Dental Plaque Is A Microbial Infection
DENTAL PLAQUE

- Biofilm loaded with microorganisms.
- Sticky Matrix.
- Adheres to both hard and soft surfaces within the mouth.
- 1 mm³ of plaque contains ~200 million bacteria!

Gingivitis
- Redness
- Puffiness
- Bleeding
- Probe Depth <3mm
- No Recession

Impact of Periodontal Disease

- Bad Breath
- Recession
- Aesthetics
- Halitosis

- Periodontal Disease
- Periodontal Inflammation
- Pain

- Systemic Diseases
- Chewing Difficulty
- Diet
Bone Loss and Tooth Mobility

Angular Cheilitis

Dry Mouth / Xerostomia

Indicators
- Feeling of dryness of oral mucosal surfaces
- Sensitive mucosa
- Dry lips/tongue
- Bad breath

Causes difficulty in:
- Mastication
- Swallowing
- Speaking
- Solubilizing food components

Clinical Implications Of Treating PWD

Xerostomia:
- Polypharmacy
- Hyperglycemic xerostomia
- Neuropathic Association?

Clinical Significance:
- Caries
- Mucositis
- Impaired Denture Retention
- Candida Infection

Burning Mouth Syndrome
Candida Albicans

Dental Caries
- Caries In Between Teeth
- Caries Around Old Filling

Dental Erosion
- Tooth Erosion

Dental Caries
- Root Caries
- Occlusal Caries

Denture Irritation
(Stomatitis)

- Dental caries
- Edentulism/ missing teeth

Oral Cancer

Stomatitis
- Reticular Lichen Planus
- Apthous Stomatitis

Dry Socket

Clinical Implications Of Treating PWD
- Obstructive Sleep Apnea
- Commonly with BMI
- Oral Appliance Therapy
In Summary

- Ideal environment for the growth of microorganisms
- Microorganisms release endotoxins which incites a destructive host-mediated tissue response.
- Release of cytokines by immunoregulatory cells.
- The inflammatory response is dysfunctional.

Impact of Periodontal Disease On Diabetes

- Elevated levels pro-inflammatory cytokines sulcus
- Cytokines released into systemic circulation
- Cytokines involved with insulin resistance.

Maintenance Recommendations For Your Patients With Diabetes

Regular dental cleanings/exams - 3-4 times per year.
- Use of soft-bristled brush and dental floss.
- Use of antibacterial toothpaste containing triclosan/copolymer/Sodium Fluoride at least twice daily.
- Removal of dentures from mouth while sleeping.
- Recommend replacement of missing teeth.
- Brushing following reversal of hypoglycemia.

What Do I Ask???

- When was the last time you visited your dentist to have your teeth cleaned/examined?
- Was there any treatment recommended?
- Was the treatment completed? If "No" - "Why not?"
- If teeth are missing explain the necessity for replacement.
- Are any of your teeth loose, hurting, or do you notice your gums bleeding?

Diabetes and Periodontitis

Poorly controlled diabetes = elevated risk of periodontitis.
Poorly controlled periodontal disease = impaired glycemic control.
Dental Professionals Role

- Opportunity and responsibility to:
  - Educate patients about the potential oral complications of Diabetes Mellitus.
  - Educate patients about the impact of their oral health on Diabetes SM.
  - Promote proper oral and systemic health behaviors.
  - Determine if patient is seeing a DE.
  - Be proactive in referring to HCP.
  - Include HbA1c and SM behavior when treatment planning.

The Coordinated Care Model

- New strategies for detection & screening of Pre-diabetes and Diabetes Mellitus.

Currently Dental Offices Involved With:
- Hypertension Screening
- Smoking Cessation
- Cancer Screening
- Nutritional Counseling (Caries Control)
- Obstructive Sleep Apnea/Snoring
- Botox

Why Not Screening For DM and Pre-diabetes?

In Summary

- Both DM and PD are inflammatory diseases affecting systemic health.
- PD and DM have a “bidirectional relationship.”
- Basic oral health assessments must be included in initial and periodic comprehensive medical evaluations.
- Both DHP and other HCP need to evaluate for appropriate referrals after their evaluations.

Role of Diabetes Educators As Oral Health Partners

Should include visual oral cancer screening and basic oral exam as part of routine physical.

Remember that dental referrals are included in the American Diabetes Association “Standards of Care.”

Educate PWD on the importance of oral health for optimal glycemic control.

Recommend prostheses when necessary.

THANK YOU!

Jerry A Brown DMD, CDE
brow1jer@gmail.com
727-743-4696
References For Sugar-Coating Oral Health: Things To Consider


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