Oral Health and the Diabetic Patient

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Disclosure

No financial backing or endorsements to report

If a dentist make his money off people with unhealthy teeth, why should I trust a toothbrush and toothpaste that 4 out of 5 dentists recommend?
Objectives

• Gain an understanding of what constitutes periodontal disease.
• Identify the role that inflammation plays in periodontal disease and diabetes.
• Define the bidirectional association between periodontal disease and diabetes.
• Appreciate the benefits of good oral health in the management of the diabetic patient.
“Classic” complications of DM

- Microangiopathy
- Nephropathy
- Neuropathy
- Macro vascular disease
- Delayed wound healing
- Periodontal disease
What is periodontal disease?

• A chronic anaerobic gram-negative bacterial infection
  – triggers various immunity responses
  – increased inflammatory mediators

• Prostaglandin E
• Interleukin-1 & -6
• Tumor necrosis factor-alpha (TNF)
• C-reactive protein (CRP)
Periodontal Disease

- **Gingivitis**
  - Reversible condition
  - Red, inflamed gingiva
  - Proper cleaning, better home care

- **Periodontitis**
  - Irreversible condition
  - Resultant loss of bone
  - Poor stability of teeth
The American Academy of Periodontology warns of a significant public health problem:

**Half of American adults suffer from gum disease.**

- 47.2% have periodontitis.
- That's 64.7 million adults 30 years and older.

- 8.7% mild periodontitis.
- 30% moderate periodontitis.
- 8.5% severe periodontitis.

Porphyromonas gingivalis (Pg)

Micro-ulcerations

George Hajishengallis
Healthy Gingival Tissue

- A healthy coral pink color of gingival tissue
- Firm attachment of the tissue along the teeth
Periodontal diseases are serious bacterial infections that destroy the attachment fibers and supporting bone that hold the teeth in the mouth.

When this attachment is destroyed, the gum tissue separates from the tooth forming pockets that fill with plaque and harbor bacteria.
Detection of Disease

- The chronic cases are easy to detect with a simple oral exam.
- The mild to moderate cases require a more in-depth evaluation.
- Periodontal probing measures the sulcus depth around each tooth.
- Healthy areas measure 3mm or less without bleeding.

www.perio.org
Gingivitis

- **Plaque-Induced**
  - *Bacterial infection*
    - no other local contributing factors
    - with local contributing factors
      - Anatomic tooth factors
      - dental restorations
      - root fractures
      - cervical root resorption
Mild-Moderate Periodontal Disease

- Gingiva appears red, swollen, and inflamed
- Interdental papilla is puffy and bleeds easily when probed
- Generalized plaque accumulation present
Severe cases

- Irreversible loss of supporting alveolar bone
- Tooth mobility of varying degrees
- *Putrid halitosis*
Periodontitis - Bone Loss
Altered response

- Impaired action of immune cells
  - neutrophil adherence, chemotaxis, phagocytosis
  - inhibited bacterial killing within periodontal pocket
- Diabetic produces elevated levels of TNF-α in response to *P. gingivalis*
- Elevated inflammatory mediators in gingival crevicular fluid (GCF) related to glycemic control
  - Interluken-1 beta (IL-1β) twice as high when HbA1c >8%
  - Increased inflammation, attachment loss, bone loss
Periodontal Disease & Diabetes Mellitus

Adverse effects
- Diabetes → Periodontal Disease (PD)
  - Hyperglycemia isn’t a diagnosis but it promotes PD
- Periodontitis → Diabetes
  - Inflammation promotes hyperglycemia, prediabetes, Type 2 diabetes

Positive effects
- Periodontal treatment improves glycemic level
  - A mean decrease of 0.4 percentage points in HbA1c
“Every percentage point drop in HbA1c level

- reduces the risk of microvascular DM complications by 40%
- reduces the risk of dying from cardiovascular disease by 25%

CDC: http://www.cdc.gov/diabetes/pubs/estimate11.html#7
Oral Health & Diabetes

• 85% of patients with Type 2 diabetes reported they received no information on the association between diabetes and oral health

• Need to improve the collaborative working relationship between oral health providers (OHP) and primary care physicians (PCP)
  – ASK patients about their ‘dental home’
  – Stress the importance of good oral health
How to treat periodontal disease

• Mechanical removal of pathogens
  – Scaling and root planning
  – Locally applied antimicrobials benefit pockets >5mm

• Increase effectiveness of home care
  – Antimicrobial/anti-inflammatory toothpaste containing triclosan
  – Mouth rinses containing chlorhexidine (CHX)
Nonsurgical Periodontal Therapy
Do Your Part

TIPS FOR A MODEL MOUTH
BRUSH. FLOSS. REPEAT.

1. Brush your teeth twice a day. No exceptions!

2. Floss daily. Brushing alone doesn’t remove plaque below the gum line, which houses more than 500 different species of bacteria. It’s simple — You only need to floss the teeth you want to keep.

3. Maintain good oral health habits. It’s the only way to prevent symptoms like swollen, gums, tooth loss and bad breath.

4. Visit Perio.org for more tips to keep your gums healthy!

http://loveyourgums.tumblr.com/post/163380038821/have-you-given-your-gums-the-love-they-need-today
Taking candy from a baby is actually the responsible thing to do.
Be true to your teeth
or they will be false to you!
References


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