PERIODONTICS LESSON PLAN

Course: Carilion Dental General Practice Residency

Topic: Periodontics

Time: 50 minutes

Materials: Computer, Smartscreen, Powerpoint, Evaluation Forms, Decision Tree Forms, Copies of Staging and Grading forms by AAP, Debridement CDT code information sheet

Instructional Objectives:

Upon completion of the lecture, the student should be able to:

1. Discuss the oral systemic link and its correlation to periodontal disease.
2. Establish stage and grade of patient's periodontal disease.
3. Differentiate between active and stable periodontal disease.
4. Develop periodontal treatment planning according to patient needs and disease progression.
5. Recommend patient periodontal treatment options and recall based on their individualized needs.

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TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
3 minutes	**I. ANTICIPATORY SET** 1. <u>Introduction</u> "Good morning. Thank you for being here. I am here with you today to discuss periodontics. I have been working as a dental hygienist for 13 years and am now working toward my Master of Science in Dental Hygiene with a focus on Public Health. I recently obtained my certificate as an oral systemic educator. My time with you today is for us to discuss periodontic diagnostics, treatment planning, and staging and grading in general and within our setting here at Carilion."	Slide #1: Periodontics Title
	2. <u>Gain Attention/Motivate</u> In the United States, "The fifth most common alleged negligence was failure to diagnose or treat periodontal disease in a timely fashion." –J.C. Baxter. Meanwhile, patients are going undiagnosed with a condition that carries both local and systemic risks and effects. The effects are growing, due to the patient not receiving treatment. "Based on the 2009–2010 National Health and Nutrition Examination Survey (NHANES) cycle, 47% of the total US adult population suffered from periodontitis, while 64% of adults age 65 and older had either moderate or severe periodontitis." It is important to patients that we work to the "gold standard for periodontal treatment. It is important to us as providers to give optimal treatment and avoid litigation risk.	Slide #2: VA Board of Dentistry on Perio Slide #3: The Problem Q: Who feels like they are very comfortable with periodontal disease diagnosis and treatment planning? A: Answers may vary, but this will help gauge how much the residents were able to focus on this aspect of dentistry in dental school.
	3. <u>Activate Prior Knowledge</u> How are we currently diagnosing perio.? Is anyone using staging and grading? The 1999 periodontal diagnosing classification system was based on severity alone. The new classification system incorporates severity, tooth loss due to perio., difficulty of treatment, overall prognosis for the dentition and oral rehabilitation needs, impact on systemic health, and expectations during maintenance therapy. What is periodontal disease? When does it require advanced treatment planning? We will be diving into information to help us better answer those questions.	Slide #4: Background Information Note: This class of residents all learned under the newer classification system.
	4. <u>Establish Rationale</u>	

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
1 minute	Goals to have in mind for this lecture include finding ways to aid in the retention of the dentition, improving patient systemic health, and improving overall clinical calibration.	Note: Currently at this clinic, diagnosis and treatment planning varies widely across providers.
	5. <u>Present Instructional Objectives</u> Upon completion of this lesson, the student should be able to: 1. Discuss the oral systemic link and its correlation to periodontal disease. 2. Establish stage and grade of patient's periodontal disease. 3. Differentiate between active and stable periodontal disease. 4. Develop periodontal treatment planning according to patient needs and disease progression. 5. Recommend patient periodontal treatment options and recall based on their individualized needs.	Slide #5: Objectives Q: What is your typical treatment plan route for controlling active periodontal disease? A: Answers will vary.

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3 minutes	**I. Periodontal Disease** A. RBL 1. Horizontal 2. Vertical 3. Early Signs a. Crestal irregularities b. Fuzziness of crestal bone c. Widening of PDL 4. Non-Periodontal Causes a. Recession b. Surgery c. Trauma d. Endodontic lesions e. Etc. O. Pocketing 1. 1-3mm 2. 4-6mm 3. 7mm + P. BOP 1. <10% of sites 2. >10% of sites 3. In area of pocketing 4mm + D. CAL "The most accurate way of assessing the staging of the periodontal disease process." 1. Gingival Margin 2. Probing Depth 3. CEJ	Slide #6: What is perio? Slide #7: Radiographic Bone Loss Q: In the set of BWX on the screen, what % or mm of bone loss would you say this patient has? A: Answers may vary, but approximately 20-25% or 3-5mm of horizontal bone loss. Slide #8: Pocketing Note: Dental hygiene scalers do not reach beyond 5-6mm." "Potential for pseudo-pocketing. Slide #: CAL Most accurate way of staging perio. "Up to the first 3mm of pocketing is considered "healthy."
2 minutes	E. Causes 1. *Home care a. Plaque biofilm b. Calculus 2. Systemic disease a. HIV b. DM c. Heart disease d. Immunological disease/suppression 3. Occlusal forces	Slide #10: Causes *Asterisks on this slide indicate causes we are focusing on for this lecture.

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	4. Endodontics 5. Restorations a. Overhangs 6. Third molars 7. *Periodontal pathogens a. Anaerobic bacteria (spirochetes, gram -, etc.) 8. *Chronic inflammation a. Host microbial-defense mechanism=chronic inflammation 9. Smoking/tobacco a. Evidence: No improvement with SRP 10. Frenum pull 11. Toothbrush abrasion	"Presence of pathogens leads to chronic host-immune response." Q: In the case of non-pathogen-initiated periodontitis causes of periodontal bone loss, what might treatment look like? A: Treat the precipitating factor(s). Ex: Nightguard for grinding, repair overhanging restorations, etc.
1 minute	F. Risk Assessment 1. Example of periodontal risk assessment a. All known risk b. Tailor treatment recommendations and pt. ed. topics. c. Salivary testing	Slide #11: Periodontal Risk Assessment form
2 minutes	G. Oral Systemic Link 1. Alzheimer's 2. Heart disease a. Perio pathogens>lipopolysaccharides>toll-like receptors>proinflammatory cytokines (IL-1, IL-6, tumor necrosis factor) b. Leokotoxins c. Direct invasion into cell wall	Slide#12: Oral Systemic Link

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
	d. Increased perio. inflammation>increased carotid artery and aorta inflammation 3. Diabetes 4. Adverse pregnancy outcomes 5. GI disorders a. Colorectal carcinoma b. IBS 6. Aspiration pneumonia 7. Rheumatoid arthritis	Q**:** How often should we see diabetic patients with perio.? A: Every 3 mos Aspiration pneumonia is a huge killer of our geriatric patients.
3 minutes	H. Legal Expectations 1. Perio. charting a. AAP: yearly probing on adults b. Every perio maintenance visit 2. Paternalism a. Present findings b. Explain the disease process c. Discuss options d. Discuss recommendations e. Refer, PRN 3. Reimbursement a. D0180 highly variable for payors 4. Patient considerations a. Special needs, uncooperative	Slide#13: Legal Expectations Q: How can we incorporate this expectation into our appointment time? A: Answers may vary. We could rotate BWX and perio probing every other visit, so as to make up for lost time.
2 minutes	I. Treatment Refusal 1. Unwilling pt 2. Pt unable 3. Refusal form a. Diagnosis b. Treatment options c. Pt choosing to forego recommended tx. Q. Charting 1. Probing depths 2. Bleeding points 3. Suppuration 4. Mucogingival relation a. Mucogingival deformities (IAG) 5. Recession 6. Mobility 7. Furcations	Slide #14: Periodontal Treatment Refusal Form Slide #16: Perio Charting graph image

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
5 minutes	R. Staging and Grading 1. Severity 2. Treatment complexity a. Bone loss b. Furcation status c. Treatment difficulty 3. Tooth loss 4. Rate of progression a. Individual disease>individual tx response>individualized tx planning 5. Risk factors	Slide #17: Staging and Grading Hand out AAP Staging and Grading charts Q: Do you think we include teeth already lost to perio AND those we plan to EXT due to perio.? A: Yes: Both indicate teeth "lost" to perio.
	6. Assess level of disease a. Probing depths b. CAL c. Tooth loss due to perio. d. FMX	Slide#18: Staging and Grading Slide #19: Three Steps to Staging and Grading a Patient
	7. Establish stage a. Severity and complexity at most affected site b. Can change over time c. Stages 1 and 2: mild-to-mod perio. non-surgical tx. Good prognosis. d. Stages 3 and 4: severe perio e. Stage 3: surgical and possibly regenerative tx's. Potential loss of 0-4 teeth. Fair prognosis. f. Stage 4: Potential loss of 5+ teeth. Advanced surgical tx and/or regenerative therapy/augmentation tx to facilitate implant therapy. Questionable prognosis.	Slide#20: Periodontitis: Staging Note: Stages 3-4: Complexity of implant and/or restorative tx is increased. May require multiple specialties for tx.
	8. Extent and distribution a. Localized (<30% of teeth) b. Generalized c. Molar/incisor pattern 9. Establish grade a. Rate of progression (RBL % of root length/age)	"Distribution pattern may affect tx planning" Slide #21: Periodontitis: Grading

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
	b. Responsiveness to standard therapy c. Potential impact to systemic health d. Can change over time e. Assume grade B and adjust from there "Start at the upper left of the graph and move toward a higher stage with each applicable factor. Grade can progress, but not regress as you move through the chart."	"Critically think about the grade modifiers and how they contribute to advancing disease."
1 minute	L. Active Vs Stable 1. BOP 2. Probing depths 3. RBL 4. Recession 5. Inflammation	Slide #22: Active Vs. Stable Q: What factors indicate currently active perio.? A: Advancing of any of these can signify worsening disease. Earlier signs usually include BOP, inflammation, and advancing probing depths.
	M. Progression/Changes 1. Tx is working a. No active bleeding b. No advancing bone loss c. Control of home care d. Control of local and systemic factors e. Healthy probing depths 2. Tx is not working 3. Going forward	Slide #23: Progression/Changes
3 minutes	N. Treatment Planning J. Prophy a. Gingival health on a reduced periodontium i. CAL due to Recession, surgery, trauma, endodontic lesions ii. RBL iii. No hx of periodontitis iv. PD 1-3mm v. BOP <10% sites vi. Controlled modifying and predisposing factors b. Gingivitis on a reduced periodontium i. No hx of periodontitis ii. CAL iii. RBL	Slide #24: Treatment Planning Hand out "Chairside Guide for Classifying and Treatment Planning for Common Periodontal Conditions"

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	iv. PD 1-3mm v. BOP great than or equal to 10% sites vi. Controlled modifying and predisposing factors K. SRP a. 1-3 teeth b. 4+ teeth i. ½ mouth SRP ii. 2 week recovery iii. ½ mouth SRP iv. 4-6 week recovery v. Fine scale (perio maintenance) L. Perio Maintenance a. Stable periodontitis i. Hx of periodontitis ii. CAL iii. RBL iv. PD 1-4mm v. Controlled modifying and predisposing factors a. Gingivitis on a reduced periodontium with stable periodontitis i. CAL ii. RBL iii. 1-3mm PD iv. BOP >10% sites v. Uncontrolled modifying and predisposing factors M. Patient ed. a. Risk factors b. Motivational interviewing c. Goals d. Oral systemic education	Q: If your patient returns for perio maintenance and you find probing depths of 6mm with BOP, do you continue perio. maintenance at the current recall schedule? A: No: This would indicate a need for more advanced treatment, as this demonstrates active disease not well-controlled by perio. maintenance.
1 minute	e. Oral health literacy f. Mental health g. Barriers N. Referral a. Beyond 5mm pockets b. Bony defects c. Furcation involvement d. Mobility	Slide#25: Treatment Planning, Contd. Hand out Periodontist Referral Decision Tree
3 minutes	S. Insurance Authorization 1. Probing depths 2. BOP	Slide #26: Insurance Authorization

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	3. RBL T. Debridement 1. D4355 a. Change in 2023 from "oral eval." To "perio. eval." 2. D0180 3. DO150 4. D0191 5. D0140 6. Frequency concerns	Slide #27: What About Debridement? Hand out debridement CDT code information sheet Slide #28: DQ Email Image Q: Do any of you use the D0191 code? If so, when? A: D0191 can be used, say if calculus needs to be removed for better evaluation.
2 minutes	U. Additional Therapies 1. Chlorhexidine a. Effects on fibroblast attachment 2. Periochip 3. Arestin (Minocycline) a. 5-8mm pockets b. Localized 4. Periostat (Doxycycline) 5. Laser therapy	Slide #29: Additional Therapies
1 minute	V. Recall/Maintenance 1. Heightened risk of recurrence 2. 3mos, 4mos, 6mos 3. Assess changes 4. Probing 5. Stable vs active 6. Increased probing, RBL, BOP	Slide #30: Recall/Maintenance "Once a perio. patient, always a perio. patient."
2 minutes	S. Clinical Notes 1. Perio charting 2. Stage, grade, extent 3. Oral systemic considerations 4. Changes 5. Conversations, referral, recommendations, options 6. Patient decision/follow-through 7. Treatment provided a. Match the codes! 8. Recare planning	Slide # 31: Clinical Notes

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
1 minute	**SUMMARY:** Thank you for your time today. In review, we discussed the oral systemic link and its correlation to periodontal disease. We learned about how to establish the stage and grade of patient's periodontal disease. Furthermore, we discussed how to differentiate between active and stable periodontal disease. We looked together at the development of periodontal treatment planning according to patient needs and disease progression. Finally, we discussed recommended patient periodontal treatment options and recall based on their individualized needs. I hope this helps clarify some of the periodontal staging and grading, the signs of active vs stable disease, the oral systemic link and its connection with periodontal disease. Going forward, we can continue to look at our treatment planning for these patients and how to provide the best individualized care to improve not just their oral health, but their overall health along with it!	Slide #32: Summary Q: Moving forward, what do you think you might change in practice regarding periodontal disease treatment? A: Answers may vary Ask if learners have any questions

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	CRITICAL THINKING ACTIVITY:	
7 minutes	**Case #1:** A 63 y.o. male presents to the clinic for his 6 month recall exam and cleaning. He is brought to clinic by staff at the residential home where he lives. He has an intellectual disability and takes the following medications: • Trazadone • Seroquel • Geodon • Clozepam • Haldol • Diphendydramine • Docusate Sodium • Loxapine Succinate • Ziprasidone HCL • Quetiapine Fumerate • Fenofibrate • Prevastatin • Carbamazepine • Polyethylene Glycol Suspension • Naltrexone HCL Upon probing, he feels moderate sensitivity. You note moderate recession on the anterior teeth and light recession otherwise. You also note halitosis, generalized food debris, heavy plaque, severe generalized gingival edema, bulbous, and erythema with heavy BOP throughout. The lower anteriors display severe clefting on the lingual aspect. You expect to obtain deeper probing depths after scaling, due to heavy deposits. You take vertical BWX, due to generalized horizontal bone loss (see BWX images). Pocket depths today with probing read up to 9mm (see perio chart image). You noticed the graph from 13 years ago and the differences in clinical attachment (see comparison graph). 1. What are the oral systemic concerns for this patient? Answer: Intellectual disability creates a barrier to patient home care and acceptance to care. There are medications being taken that likely indicate mental disorders, which can also affect home care commitment. Some of these medications have oral side effects, including xerostomia. Him taking fenofibrate	Slide #33: Case Study #1

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	and ravastatin suggests he may suffer from high cholesterol. Naltrexone suggests a history of substance abuse. 2. What barriers to treatment planning exist? Answer: Patient has multiple mental conditions keeping him from being able to give legal consent for procedures. His power of attorney would need to provide consent. 3. What stage and distribution of periodontitis is displayed in this patient? Answer: Stage IV, generalized 4. What grade of periodontitis does he have? Answer: Grade B 5. What treatment planning options do we have? Answer: It appears this patient has not had SRP in the past, that we know of. Options going forward include, but are not limited to: • Debridement>probing>SRP 4 quads>perio maintenance • SRP 4 quads (1-3 teeth vs 4+ teeth depends on probing depths post-debridement)>perio maintenance • Periodontist referral (highest recommended, due to pockets beyond 5mm). Treatment success for other options is expected to be unlikely with such deep pockets. Any option chosen should include home care instructions and oral systemic connection education, with periodontal maintenance on a frequent recall basis to better manage disease control.	
6 minutes	**Case #2:** This patient is a 53 y.o. male with HIV, HTN, asthma, and a history of arthroscopy of the knee. He is taking Genvoya, Lasix, Metoprolol, and rarely Albuterol. He presents with light plaque and slight gingival inflammation. There is no recession and no mobility noted on examination. Probing today shows up to 5mm pockets in localized areas, with BOP (see perio charting image). There is class I furcation involvement on the disto-lingual of tooth #14 and the lingual of tooth #30. This patient has lost teeth previously due to caries. Heavy calculus is found throughout the mouth, along with 1-3mm of horizontal bone loss (see BWX images). 1. What oral systemic concerns do we have for this patient?	Slide #34: Case Study #2

TIME	LESSON CONTENT	NOTES-MEDIA-Q/A
	Answer: HIV causes a reduced ability of the body to fight off pathogens, increasing this patient's risk of advancing periodontitis. This also increases chronic inflammation in the body, with potential effects to his HIV control. HTN appears to be controlled by medication for this patient, but indicates a risk for worsening heart disease with advancing periodontal disease. 2. What is the staging and extent for this patient? Answer: Stage II (up to 2mm of true CAL, RBL about 20% at site of greatest loss, max probing depth 5mm), generalized. 3. What is the grade for this patient? Answer: Grade B (unsure of changes over time. 20% bone loss/53y.o.=0.38). 4. What is the best recommended treatment plan? Answer: SRP (1-3 teeth) UL, LL, LR (and maybe UR, for the 4mm pocket, depending on provider. There is no bleeding in this area). Patient home care instruction, oral systemic education. Other strategies, such as Arestin, are also optional. Follow-up with 3 month perio maintenance visits is recommended, due to suppressed immune system.	

Test Items

Objective #1: Discuss the oral systemic link and its correlation to periodontal disease.

Test Item #1: Periodontal pathogens have been implicated in the disease progression of all of the following EXCEPT:

A. Von Willebrand's

B. Alzheimer's

C. Rheumatoid Arthritis

D. Diabetes Mellitus

Objective #2: Establish stage and grade of patient's periodontal disease.

Test Item #2: A patient with 50% RBL and 3 teeth with class III mobility, who presents with very little plaque and calculus most likely has which type of periodontal disease.

A. Stage III, Grade B

B. Stage III, Grade A

C. Stage IV, Grade B

D. Stage IV, Grade C

Objective #3: Differentiate between active and stable periodontal disease.

Test Item #3: A patient with stable periodontal disease is expected to present with:

A. Periodontal pocketing under 4mm, no BOP, no gingival inflammation, and minimal RBL.

B. Periodontal pocketing between 1 and 4mm, minimal BOP and gingival inflammation, and no increased RBL.

C. Periodontal pocketing under 4mm, minimal BOP, slight to moderate gingival inflammation, and minimal increases in RBL.

D. Periodontal pocketing between 1 and 4mm, localized BOP and gingival inflammation,

and no RBL.

Objective #4: Develop periodontal treatment planning according to patient needs and disease progression.

Test Item #4: A patient comes to you for a dental prophylaxis. After taking the yearly BWX, you discover localized horizontal bone loss of about 2mm that was not seen in the last set of BWX from a year ago. Upon probing, you find several 4-5mm pockets with BOP. These are the only signs of periodontal disease that you discover, and the patient admits to avoiding brushing and flossing since his wife died 5 months ago. In 3-5 sentences, explain the treatment plan you recommend for this patient.

Objective #5: Recommend patient periodontal treatment options and recall based on their individualized needs.

Test Item #5: A 35-year old patient of yours rides the city bus to her appointments. She just lost her job and is hoping to keep as many teeth as possible. She has stage III perio. and her last A1C check revealed that her levels were 9%. What treatment recommendation do you give her, knowing she cannot afford SRP or a periodontist referral? Explain your answer in 3-5 sentences.

Correct Answer Key:

1. A

2. D

3. B

4. Answers may vary. This case requires aggressive treatment, due to the grade C rate of progression. It is appropriate to perform motivational interviewing with this patient and go over health history to seek out any changes that might explain the sudden loss of periodontal health. This patient may need referral services for both periodontal treatment as well as psychological help, as it appears the recent loss of his wife has impacted his mental health. Treatment could consist of SRP in the dental office, but must be followed up by periodontal maintenance visits on a short recall basis, until the attachment loss is well controlled. It might also benefit the patient to consider laser therapy or sub-gingival medication. A periodontal risk assessment forms needs to be gone over with the patient to determine factors involved in his health. Example treatment plan: SRP 1-3 teeth in all four quadrants with Periochip placed in 5mm pockets after each quad is scaled, with a fine scale appointment 4-6 weeks after completing treatment.

5. This patient deserves to be given all appropriate options. The optimal option of a periodontist referral should be given first, with an explanation of the oral systemic link, her risk factors, and considerations for retention of the dentition. It is up to the patient to decide what she can accept financially. It would be necessary to monitor her glucose levels prior to any anesthesia used, and to determine if treatment is helping with her Diabetes, and to determine if scaling deeper pockets is safe for her (from a wound healing standpoint). It might be helpful to refer her to a free clinic for care, if she would like. She would likely benefit from home care instructions and discussions regarding the oral systemic link. She requires a 3-month recall, due to her uncontrolled HbA1C, if she is able to return that frequently. In the chance she rejects recommended treatment planning, alternatives should be provided, with a discussion of the risks. Also, a treatment refusal form should be used to document that the golden standard treatment was offered to her and she declined. It is not up to the provider to determine patient's willingness and ability to pay. It is their responsibility to provide treatment options, giving the patient all relevant information to help guide their decisions for treatment follow-through.