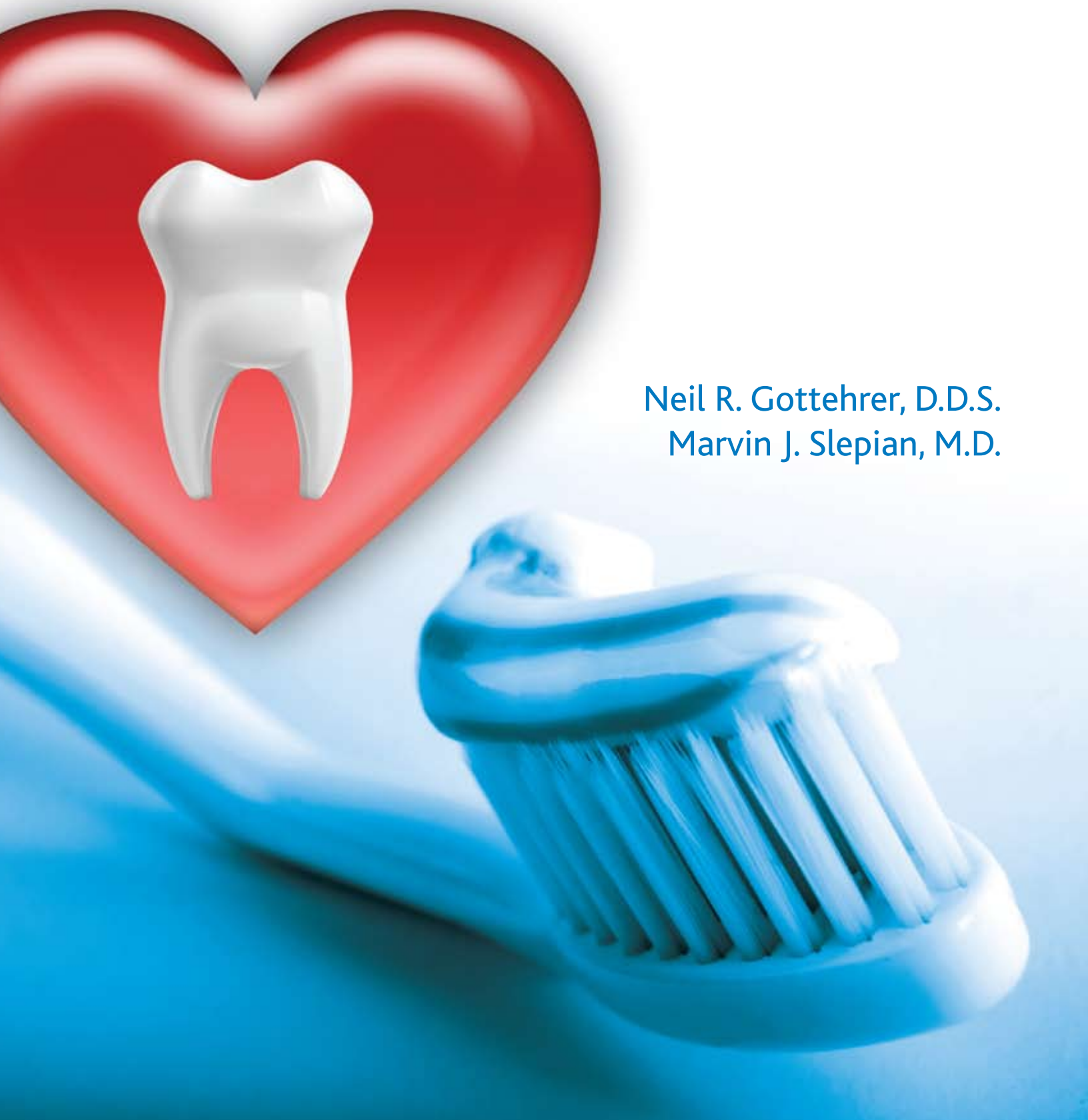
EVALUATION & MANAGEMENT
OF THE ORAL BODY INFLAMMATORY CONNECTION

RESOURCE GUIDE



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ORAL-BODY INFLAMMATORY CONNECTION

Cardiovascular disease (CVD) and periodontal disease are among the most prevalent conditions affecting adults today. Periodontal disease affects as many as 75% of adults in the United States. It is estimated that as many as 80 million (1 of every 3) adults have cardiac disease. 38.2 million are under the age of 60.

Recent clinical studies confirm a strong connection between the two diseases. Desvarieux, et.al. in 2005, studied the relationship between periodontal bacteria and atherosclerosis (increased carotid artery intima-media thickness, i.e. narrowing of the artery). He found that periodontal infections can contribute to CVD morbidity (death) and that the chronic oral (periodontal) infection can be a possible mechanism causing CVD.

Because of the oral-body inflammatory connection and association, clinical treatment studies have been performed to evaluate the effect of aggressive treatment of periodontal disease on the degree of heart disease. In April 2009, Piconi, et.al., published a study showing that treatment of periodontal disease resulted in improvement in atherosclerosis and reduced narrowing of the carotid artery (intima-media thickness). The results clearly indicated a strict association existing between periodontal disease and atherosclerosis, suggesting that periodontal disease is an independent risk factor for the development of atherosclerosis and is a significant predisposition for the disease!

These clinical studies provide strong evidence for physicians, faced with the challenge of managing CVD and keeping patients healthy, to request a Periodontal Risk Assessment (current periodontal status) from the dentist. Periodontal disease has the potential to become a recognized risk factor in cardiac disease. It is now critical for the dentist to collaborate with the physician and help patients reduce their disease risk with conservative non-surgical periodontal care. This care may help lower risk factors for heart disease, improve patient health and perhaps increase longevity of life.

GOALS OF PERIODONTAL RISK ASSESSMENT (PRA) SCREENING EXAM

A Periodontal Risk Assessment should now be performed on all existing adult patients in the dental practice who have not received active periodontal treatment or are not under care/management for periodontal disease. It should also be provided for all new patients, coming to see the dentist for the first time for treatment evaluation. Some of the new patients will be coming exclusively for Periodontal Risk Assessment, referred by the physician or coming as a result of learning of this connection, who are concerned about their physical health. They will want to know if their dental (periodontal) condition may be putting them at risk for cardiovascular heart disease.

The Risk Assessment is designed to provide information for both the dentist and physician regarding the present periodontal status of the patient. It is being done to determine if there is active disease present, i.e. pocket depth, which upon examination, produces bleeding when examined with a manual periodontal probe.

By performing the Risk Assessment, the dentist will determine if the patient has active periodontal disease, requiring additional testing and possible treatment. If the assessment results are positive for disease, there is then indication for referral to the family physician and/or cardiologist for systemic blood testing and further evaluation. With active periodontal disease there can be positive signs of systemic inflammation and possibly a risk for adult onset diabetes. The Risk Assessment will indicate if there is a need for both the dentist and physician to manage the patient's health risks.

If the patient understands the possible serious medical risks of periodontal disease, by performing the Risk Assessment, this will be a motivational and educational tool to help the patient make the decision to treat and control their dental disease and possibly reduce their risk for other severe medical conditions such as heart attack or stroke.

IMPLEMENTATION OF STAT-CK PRA IN THE DENTAL PRACTICE

Every adult patient in the family dental practice should be assumed to have had or presently has some form of active gingivitis and or periodontitis. While the traditional examination for periodontal disease is still classically a six point probing on each tooth, there is need for a screening exam to determine if the patient has active disease and requires treatment. The traditional reason for evaluation for treatment is to treat active disease and retain as many teeth as possible, i.e. prevent tooth loss.

With the introduction of clinical studies that confirm that periodontal disease is a major potential risk for cardiac disease, the rationale now for examination is to perform a Periodontal Risk Assessment, basically a screening exam for periodontal disease which may place the patient at risk for cardiac disease, thus the designation as a "risk assessment" rather than just a periodontal evaluation for active disease.

Using the Stat-Ck Periodontal Risk Assessment form, developed for the dentist to use as a screening exam in 2002, the patient's risk is evaluated on a scale of A-F, A being no risk and F being a failing condition with major risk for disease as well as loss of teeth. The mouth is examined in quadrants with a risk grade given for each quadrant.

As part of the risk assessment, teeth are evaluated for the need for "periodontal" restorations to retard active disease and reinforce and restore sound tooth structure (Captek crown). These restorations are now referred to as periodontal crowns.

Teeth with advanced bone loss are evaluated for consideration for strategic extraction and replacement with "bioactive" dental implants. These results are recorded on the form with a copy given to the patient and a copy sent to the physician with a letter of findings accompanying it. This can permit combined management of the physician and dentist to reduce these risks.

Cardiac patients now taking anticoagulants do not have to be taken off these drugs for exam/treatment. The new portable, compact Bident unit (bident.com) can easily be used to coagulate any bleeding site. The risk of a stroke, by stopping the drug, is now elminated. Having this unit to use in office promotes a closer working relationship with the physician.

PERIODONTAL RISK ASSESSMENT EXAM

Treatment Protocol Recommendations: Sharpen hand instruments prior to treatment;
Use optical magnification; Use Oraqix and Nitrous Oxidefor analgesia; Use an ultrasonic scaler

Patient Name: _____

Initial Periodontal Risk Assessment Date: _____

Risk Assessment: Smoker-☐ History of Heart Disease-☐ Medications-☐ Family History-☐ Hormonal-☐

Stat-Ck™ grade status (A-Condition Stable; B-Bleeding on probing; C-calculus present; D-Deposits present with pocket depth >5mm; F-Failing teeth with pock depth >6mm).
Checked quadrants which require site-specific anti-infective medication application.

Grade	A	B	C	D	F	UR ☐	UL ☐
Pocket Depth	≤4mm at any site in quadrant	≤4mm at any site in quadrant	≤4mm at any site in quadrant	5-6mm at any site in quadrant	>6mm at any site in quadrant		
Bleeding on Probing (BOP)	No BOP at any site in quadrant	BOP at any site in quadrant	BOP at any site in quadrant	BOP at any site in quadrant	BOP at any site in quadrant		
Subgingival Debris	No Subgingival debris in any quadrant	No Subgingival debris in any quadrant	Subgingival debris in any quadrant	Subgingival debris in any quadrant	Subgingival debris in any quadrant		
Treatment Guidelines	Routine prophy	Scaling Prophy Host Modulation Full Mouth Ultrasonic	Scaling Root planing Prophy Host Modulation Full Mouth Ultrasonic	Scaling Root planing Prophy Host Modulation Full Mouth Ultrasonic Site specific Anti-infective	Scaling Root planing Prophy Host Modulation Full Mouth Ultrasonic Site specific Anti-infective	LR ☐	LL ☐

Place an asterisk (*) in the box to indicate quadrant(s) where site-specific anti-infectives, e.g. ATRIDOX, were placed.

Initial Host Modulation (i.e. Periostat®) Rx written on _____/_____/_____

Teeth requiring periodontal crown (Captek)	UR	LR	UL	LL
Teeth with poor prognosis	UR	☐ **recommend replacement with implant**		
	LR	☐ **recommend replacement with implant**		
	UL	☐ **recommend replacement with implant**		
	LL	☐ **recommend replacement with implant**		

Follow-up Stat-𝒞ℓ™ Exam Results

Stat-𝒞ℓ™ Grade	1st	Stat-𝒞ℓ™ Grade	2nd	Stat-𝒞ℓ™ Grade	3rd
UR ☐ UL ☐	Date M D Y	UR ☐ UL ☐	Date M D Y	UR ☐ UL ☐	Date M D Y
LR ☐ LL ☐		LR ☐ LL ☐		LR ☐ LL ☐	
Periostat® Rx renewed on		Periostat® Rx renewed on		Periostat® Rx renewed on	

Place an asterisk (*) in the box to indicate quadrant(s) where site-specific anti-infectives, e.g. ATRIDOX, were placed.

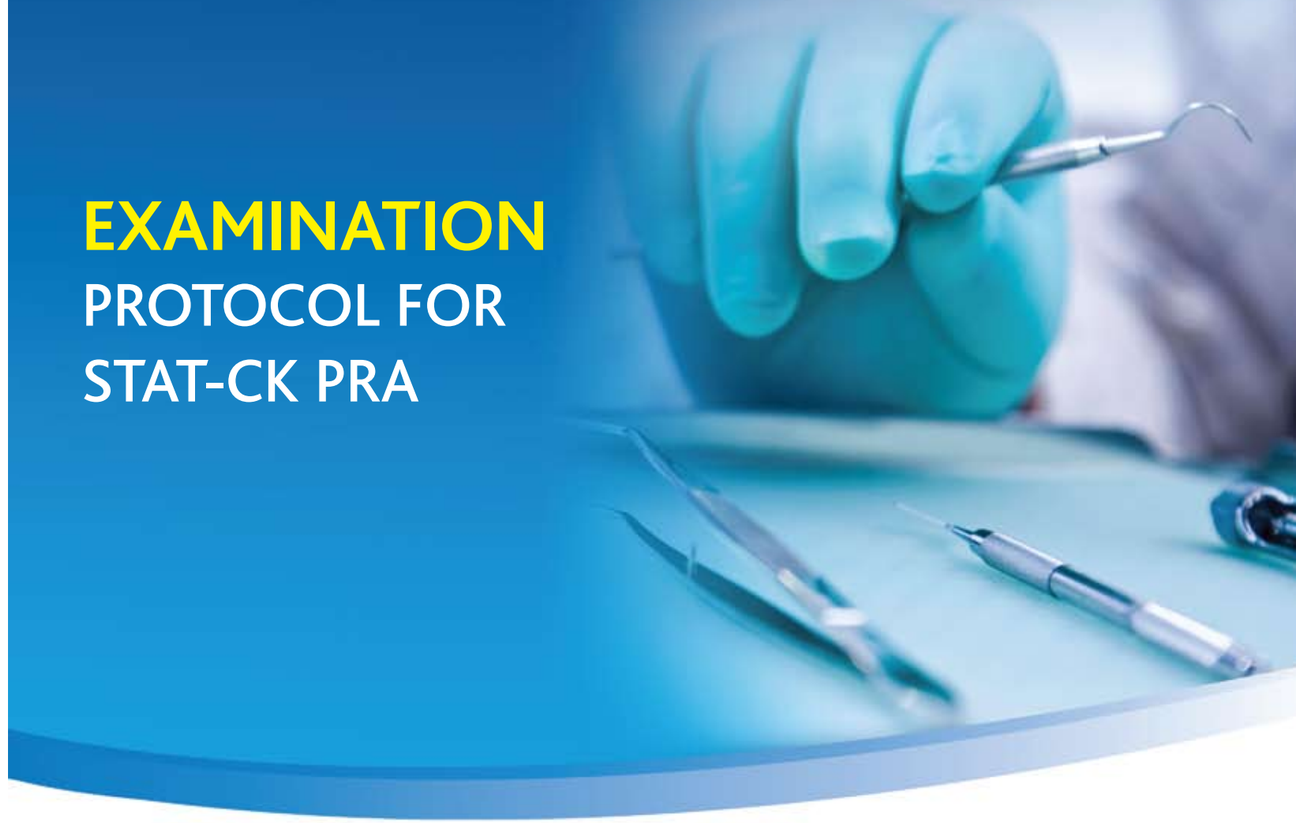
Stat-𝒞ℓ™ Grade	4th	Stat-𝒞ℓ™ Grade	5th	Stat-𝒞ℓ™ Grade	6th
UR ☐ UL ☐	Date M D Y	UR ☐ UL ☐	Date M D Y	UR ☐ UL ☐	Date M D Y
LR ☐ LL ☐		LR ☐ LL ☐		LR ☐ LL ☐	
Periostat® Rx renewed on		Periostat® Rx renewed on		Periostat® Rx renewed on	

Place an asterisk (*) in the box to indicate quadrant(s) where site-specific anti-infectives, e.g. ATRIDOX, were placed.

Stat-𝒞ℓ™ Grade	7th	Stat-𝒞ℓ™ Grade	8th	Stat-𝒞ℓ™ Grade	9th
UR ☐ UL ☐	Date M D Y	UR ☐ UL ☐	Date M D Y	UR ☐ UL ☐	Date M D Y
LR ☐ LL ☐		LR ☐ LL ☐		LR ☐ LL ☐	
Periostat® Rx renewed on		Periostat® Rx renewed on		Periostat® Rx renewed on	

Place an asterisk (*) in the box to indicate quadrant(s) where site-specific anti-infectives, e.g. ATRIDOX, were placed.

Stat-𝒞ℓ© Periodontal Risk Assessment Exam



EXAMINATION
PROTOCOL FOR STAT-CK PRA

After diagnostic x-rays have been taken, the patient then undergoes the Stat-Ck Periodontal Risk Assessment exam. This screening examination effectively replaces the PSR (Periodontal Scoring Record), since it requires a formal grade for each quadrant, based upon the condition of at least one tooth in the area.

A manual periodontal probe must be used with suggested divisions of 3-12 mms. Six point probing are done with only the deepest number considered for the grading of the quadrant. It is recommended that these six point probings be recorded once the patient elects to have treatment, or to document a condition if there is a need for treatment and the patient refuses care. A formal record of probing allows a geographic comparison of response to treatment. Patients who are taking blood thinners will bleed more with probing.

The BIDENT treatment unit can be effectively and safely used to control this bleeding. It eliminates the need for taking the patient off these life saving drugs prior to treatment, which the physicians prefer not to do.

However, the Stat-Ck PRA should be done at every periodontal maintenance or scaling/prophylaxis visit, with the results given both to the patient and physician so they will have a formal record of their ongoing condition. The physician will have up to date information to use each time the patient comes in for a physical exam. It will also allow the physician to confirm to the patient that the dentist has been helpful by regularly reporting on their condition and risk of oral disease.

Teeth that have large restorations making optimal plaque removal and good oral hygiene difficult have to be evaluated for the possible placement of a periodontal crown (Captek). These teeth are recorded by quadrant on the Stat-Ck form.

Also, teeth that are not considered retainable in a healthy periodontal condition should be marked for possible strategic extraction and replacement with a biologically active dental implant. They are recorded by quadrant on the Stat-Ck form. All recorded results are forwarded to the physician on this single form.

ORAL HYGIENE INSTRUCTION / KIT TO REDUCE PERIODONTAL RISK

In order to achieve a predictable and successful long term stabilization of the patient's periodontal condition, a specific home hygiene management program must be followed by every patient. This should be done at least twice a day, if possible twelve hours apart, to remove the offending oral bacteria, above and below the gum margin.

Antimicrobial toothpastes have been documented to reduce microorganisms from the plaque and saliva, when used at least twice a day with brushing, and all patients should be encouraged to routinely use them.

While the use of interproximal cleaning with dental floss is still encouraged, recent evidence shows that use of a powered toothbrush appears to be as effective for most adults as manual tooth brushing combined with interproximal cleaning. As a result of this, patients should be encouraged to use a powered (battery operated) toothbrush as part of their daily oral hygiene routine.

Brushing must be immediately followed by oral irrigation, if removal of the offending bacteria is to be achieved. Multiple studies have shown that irrigation cleansed deep between the teeth and below the gingival margin to remove bacteria. Since it has been shown that the irrigator can now remove the biofilm which hosts the plaque and it can reduce the total microbial load, the power irrigator reaches the subgingival bacteria completing the removal of the dental plaque. This must also be done twice daily.

In order to successfully implement a program of treatment to reduce and control periodontal disease, the patient must be helped to successfully manage inflammation by removal of the bacterial plaque. With regular use of the power aids and hygiene products, and coaching and encouragement from the dental professional, all patients can expect to see improved clinical results and a healthier mouth.

Total hygiene kits are becoming available commercially that make it easier for the patient to maintain a healthy mouth following the above hygiene recommendations. The new Dentalifeusa hygiene kit (www.dentalifeusa.com) contains a power brush, irrigator, paste, rinse, and floss with instructions on how to maintain a healthy mouth between dental visits. With such kits, it will be much easier for the patient to maintain consistent good oral hygiene.

CONTEMPORARY DRUG MANAGEMENT PRA IMPLEMENTATION

Routine use of inflammatory modulators such as low-dose doxcycline (Periostat) 20 mg., which does not act as an antibiotic, can successfully address local tissue inflammation via the systemic route. It is suggested for adult patients with periodontitis to improve the efficacy of scaling and root planning using hand instrumentation and ultrasonics. The initial studies by Golub showed that it blocks tissue destructive enzymes. It was confirmed by Caton that periodontal treatment in conjunction with use of this drug, improved the efficacy of scaling and root planning in adult patients with periodontitis.

Local delivery of antimicrobials, e.g. Atridox (doxycycline gel), offers the clinician a statistically and clinically significant option in the treatment of chronic periodontitis. The Agency for Healthcare research and Quality (AHRQ), the federal agency assigned to improve quality, safety, efficiency and effectiveness of healthcare, evaluated literature on these antimicrobials. They concluded that scaling and root planning, accompanied by an antimicrobial agent as a supplemental or adjunct treatment, resulted in improved outcome in adults with chronic periodontitis, as compared with scaling and root planning alone. The conclusion was that studies of locally applied antimicrobials have consistent positive results in large studies. Thus, these locally applied, site specific antimicrobials should be used on a routine basis in managing periodontal disease.

With the availability of these drugs, both systemic and locally applied, it is suggested that both be used where active disease is detected to help resolve disease and restore periodontal health as soon as possible. Patients are used to medical treatment with drug products and it is a natural addition to periodontal treatment to follow the medical model.

NEW PATIENT GUIDE FOR SCREENING EXAM

Every new adult patient potentially has a periodontal condition which requires a program of conservative non-surgical periodontal treatment. It is often difficult to motivate a patient to consider this treatment. However, with the appropriate questions asked of each new patient, at their first visit to the practice, most new patients will consider a screening exam and treatment for their periodontal condition, if required.

The first question to be asked of all new patients is what has brought them to the practice for evaluation. Once this is answered, it allows the doctor/hygienist to review the medical history and ask the patient if they are aware of or have read of the possible relationship between dental disease and cardiac conditions. Most have and even if not aware, the patient can then be asked if they are concerned about their health. Most are and the obvious response of concern allows us to tell that their gum health (or absence of health) can easily place them at risk for a heart attack or stroke. Most patients are terrified of this risk because they want to live and be healthy.

The immediate next remark to the patient is, because of their concern, and your interest in their health, that a screening exam for gum disease should be done to rule out the risk for disease. The patient is advised that a brief 15 minute Risk Assessment Screening Exam, following the Stat-Ck guide format, will be done to rule out this risk.

The patient must be told that, because of the serious nature of this disease, the results of the screening exam will be sent to the family MD to become part of their medical record. If disease is active and present, the patient must be informed that they will have to do two important blood tests which will confirm the presence and/or possible severity of the disease. With this information, the patient can then be asked what they would like to do about controlling their condition. They have enough information to make a decision to treat without having to be told it must be treated. This decision will obviously be strongly influenced by the results of a screening exam.

With the patient now motivated to make a decision to treat, a complete periodontal exam with six point probing can then be done to prepare a treatment plan. More patients who require care to control their disease will decide to have the necessary care completed.

EXISTING PATIENT GUIDE FOR SCREENING EXAM (AND LETTER TO EXISTING PATIENTS)

Once the protocol for a screening exam for new patients has been selected and used in the practice, the same Risk Assessment should be done for all patients who are suspected of having disease and who either refused or have not had evaluation/treatment.

A majority of existing patients who have not had their condition evaluated will decide to have a screening exam, since they do not want to be at risk for their overall health. A letter should be composed and sent to all patients informing them of this connection/risk and offering them the opportunity to have the screening exam. If there is a concern about barrier to entry being financial, it is suggested that this be done complimentary. When the patient understands that you are so concerned about their condition and willing do this screening complimentary, they are more likely to begin treatment since you have eliminated the exam cost, often known to be the barrier to entry.

A SUGGESTED LETTER COULD BE IN THE FOLLOWING FORMAT:

Dear patient,

Recent information has become available that serious systemic disease, specifically heart attack and stroke, may result from a chronic condition, periodontal disease. Many of our patients have only had limited scaling at their cleaning visits. Because of the new evidence indicating this risk, we want to examine all our current patients for periodontal risk. If you are available, we will do this exam for you immediately. We are offering this exam at no charge in order to make it possible for all our patients to have this risk assessment.

If you are concerned about your health, and not aware of what your periodontal risk may be, please call our office to schedule an exam. Because of the potential serious nature of this disease, we will be forwarding the results of our exam to your physician and asking them to do two blood tests that can now be done to evaluate for the risk of the disease.

Thank you again for trusting us with your dental treatment. We look forward to doing this screening exam for you.

Sincerely,

Dr. X

PHYSICIAN LETTER OF FINDINGS TO ACCOMPANY STAT-CK PRA FORM SENT BY FAX

(Modified from form provided by Dr. Lee Ostler, www.mdreferrals.net, The Physician's Marketing Handbook).

Date: _____

To:	Dr.	Fax #	
From:			
Re: Disease Management for:		/ /	
	Patient Name	Date of Birth	
Re: Host Modulation therapy using Sub-antimicrobial dosage Doxycycline (SDD) Protocol for treatment of Periodontal Disease. *			

Your patient has been diagnosed with periodontal disease, including persistent gingival bleeding on examination from periodontal pockets. Enclosed is a copy of the Stat-Ck™ Periodontal Risk Assessment screening exam with the results of my findings and suggested treatment protocols to stabilize the diseased condition. Your assistance in evaluation is critical for our patient in determining risk. The treatment program includes:

1. Non-surgical periodontal therapy combined with improved oral hygiene using an oral care kit which includes a battery operated power toothbrush, oral irrigator, antimicrobial toothpaste and mouth rinse, and dental floss.
2. Host modulation therapy using a very safe drug, sub-antimicrobial dosage doxycycline (20 mg. BID) and medical monitoring with appropriate blood studies.

Key treatment goals are to reduce chronic inflammation and associated bleeding in the gum tissue around the affected teeth, reduction of the microbial challenge in the mouth, and successful management of the host response to this infection. In addition to improved oral health, extended objectives are to reduce periodontal risk factors now document to be directly associated with cardiac disease and diabetes.

Recently published medical studies have shown documented reversal of atherosclerosis with conservative nonsurgical periodontal care, which we use in managing your patient, as well as a 50%, reduction in the CRP levels using the very safe drug, sub-antimicrobial doxycycline!

Please order the necessary blood screening testing, hs-CRP and HbA1c levels, and forward copies of the test results to me. Thank you for your assistance. Also, please advise if you have any concerns about your patient taking Periostat® (doxycycline hyclate 20 mg.), 180 tabs, 1 tab BID for 90 days.

Please indicate your response by RETURN FAX to me as soon as possible. With your response, our treatment program can begin or continue as recommended. I look forward to the pleasure of working with you to stabilize this serious medical /dental condition successfully and helping to reduce the now documented associated medical risk.

PHYSICIAN RESPONSE (FAX to _____)

(Please check # 1, 2 and/or 3)

1		Have patient schedule medical appointment, for evaluation
		No appt necessary
2		Physician will order blood lab tests, to include hs-CRP and HbA1c, and FAX a copy of the test results.
		Copy of test results to be forwarded to _____
3		Blood work recently done, including hs-CRP and HbA1c, copy enclosed by FAX
Doctor signature:		MD/DO
*Provide physician email to receive additional info regarding patient treatment.	Email address:	

Thank you for your cooperation.

Confidential Information: If you are not the intended recipient of this fax, please destroy and contact sender.

PATIENT BLOOD TESTING REQUESTED FROM PHYSICIAN FOR SCREENING

Two blood screening tests should be requested from the physician to be done for the patient. The request is enclosed in the physical letter of findings. It includes High sensitivity C-Reactive Protein (hsCRP), a blood assay used to estimate an individual's risk for heart disease and stroke, and measurement of the presence of inflammation or infection. C-reactive protein is produced by the liver and is not normally found in the blood in high amounts. It is rapidly produced following inflammation, an injury or bacterial or fungal infection. It can disappear quickly once the inflammation, such as seen in periodontal disease, is resolved. According to the American Heart Assoc., there are three risk levels, under 1mg (low risk), 1-3mg (average risk), and more than 3mg (high risk) per liter of blood.

The second is the Hemoglobin Alc test for diabetes. It determines how well the diabetes is being controlled. Hemoglogin is within red blood cells that carries oxygen throughout the body. When the diabetes is not controlled, with blood sugar levels being elevated, sugar builds up in the blood and combines with hemoglobin, becoming "glycated." If glucose levels are too high over recent weeks, the hemoglobin Alc will be higher. Normal range is between 4-6%. The goal is a blood level of less than 7%. The higher the blood level, the greater the risk of developing complications related to diabetes.

It has been documented that both blood levels can be elevated in the patient with active periodontal disease and that these levels can be decreased with aggressive, but conservative management of the periodontal condition non-surgically. If doxycycline is used as part of the management for control of the condition, these elevated blood levels can be expected, as documented in the research literature, to return to normal more rapidly and stay reduced for an extended period of time.

GUIDE FOR PAINLESS RISK MANAGEMENT TREATMENT BY DENTIST

One barrier to consumer acceptance of conservative non-surgical periodontal treatment is fear of pain. Treatment must be provided painlessly. Many times, in order to achieve the goal of painless treatment, analgesia must be used.

While it has been estimated that 15% of the US population declines dental care primarily because they fear oral injections, nitrous oxide/oxygen analgesia relaxes patients and reduces their anxieties allowing them to undergo painless treatment. The ADA recommends the use of a properly installed nitrous oxide delivery system with appropriate scavenging such as the Porter Instrument Conscious Sedation Flowmeter.

To achieve a successful result with utilization of optimal treatment procedures, analgesia must be available to use with the patients who require it. A recent innovation in analgesia, making it possible to do non-surgical treatment without injectable anesthesia, is Oraqix from DENTSPLY PHARMACEUTICAL, a thermogel containing 2.5% lidocaine and 2.5% prilocaine. It is directly placed into the pocket using a blunt cannula to place the anesthetic. It is explained to the patient that it is NOT an injection. Its placement is relatively painless and can take up to 30 seconds for onset and can last for an average of 20 minutes.

It is now recommended, because it is so profound in its effect in preventing any pain in treatment, that it be used routinely for all patients who require subgingival scaling. By reducing the risk of any pain, the patient can be advised that the treatment can be painless. This encourages the patient to accept treatment who normally would be concerned about the pain of injections of local anesthetic or simply pain during treatment. Being able to do treatment painlessly on a predictable basis builds trust in the patient for you. It also significantly improves the response to treatment and success of care.

PERIODONTAL CROWN FOR AT RISK PATIENT

Dental crown restorations have been considered a major contributory factor in the etiology of periodontal disease. Adverse tissue response has been seen from placement. In a May, 2009, paper authored by Dr. Neil R. Gottehrer, "V. Periodontal Crown: Creating Healthy Tissue," that the Captek crown has been documented to create significant positive response when placed and might best be described now as "Periodontal Crown." It can be considered the standard treatment of choice, especially when considering that it reduces the inherent risk of additional plaque which may assist in reducing further risk for cardiac disease.

It should be created by a laboratory with expertise in creating these crowns, who can help the dentist with advice in creating the preparation and selection of the proper material. Such a laboratory is Keating Dental Arts, (1-800-433-9833), who created the illustrations below to help understand how such a crown is best completed. The laboratory must be prepared to assist you if the optimal response is to be achieved.

The Captek crown pictured above is the preferred design for teeth with periodontal disease extending into the furcation.

The design of this Captek crown exhibits optimal esthetics with porcelain on the buccal while maintaining the periodontal benefits of the Captek metal interproximally and lingually.

CARIES CONTROL AND DESENSITIZATION TO DECREASE RISK

One of the most comment causes of chronic plaque accumulation and persistence of periodontal problems is dentinal hypersensitivity. Preventing this has been a very challenging and daunting task. It must be controlled if the disease is to be defeated with conservative care. Likewise, if the plaque remains on the root, placing the patient at risk for decay, more plaque can be attracted to the area and the active carious lesion with additional plaque and possible increased root sensitivity, can place the patient at increased risk for both caries and periodontal disease.

New products are available to provide sensitivity relief, often described as immediate by many patients. 3M Espe manufactures Vanish XT Extended Contact Varnish, a six month protective barrier that immediately can relieve sensitivity and provide a long term release of fluoride, calcium, and phosphate. The varnish is a site-specific, light cured durable coating that forms an immediate layer of protection. This is responsible for the relief of dentinal hypersensitivity. This permits the patient to brush previously non-cleansable areas, due to the excessive sensitivity. The product provides an extended fluoride release because of the extended varnish. Clinical research studies have shown that it can be recharged with fluoride toothpaste, maintaining its relief from sensitivity over the anticipated six month retention on the tooth.

The 1.1% sodium fluoride office dispensed toothpastes, e.g. 3M Espe Clinpro 5000, delivers a higher concentration of fluoride than conventional toothpaste. For teeth affected by demineralization, with a higher risk of decay and associated risk of disease, this is an optimal supplement to regular fluoride toothpaste. It contains a 900 ppm fluoride topical crème containing calcium phosphate. When the toothpaste comes in contact with saliva during brushing, the protective barrier around the calcium, allowing it to coexist with the fluoride ions, is broken down. This results in the calcium, phosphate and fluoride readily available to the tooth, which naturally absorbs these. It is this process which helps to prevent progression of demineralization and allows remineralization to occur.

If we are able to control root sensitivity and improve the integrity of the tooth where the toxic bacteria collect, we have the opportunity to help control the risk of disease. Every opportunity to do this will help to improve the overall health of the patient by reducing these risks. The ability to control these problems will also improve the compliance of the patient in performing the required daily hygiene routine, making it easier for the dental professional to control the chronic disease risks.

PATIENT LETTER TO THOSE WHO HAVE COMPLETED RISK MANAGEMENT CARE

LETTER TO PATIENTS WHO HAVE BEEN PRESCRIBED DOXYCYCLINE:

Dear Patient,

I am excited to report to you that we now have confirmation that the non-surgical periodontal treatment we have prescribed for you, in conjunction with taking the prescribed low dosage doxycycline, 20mg, that you are taking, reduces the risk for heart attack and stroke.

A recently published study has documented that atherosclerosis is REVERSED with this treatment. With prior information from a clinical study which showed that low dosage doxycycline, prescribed for patients with a history of a heart attack or angina, used with no periodontal care, reduces c-reactive protein (CRP), a major test enzyme indicator for cardiac disease, as much as 50%, we now feel confident that we can help you reduce your risk for these serious diseases.

We are now recommending to all our patients that this treatment program be continued, if concerned about your health. We suggest this since we feel it can help to prevent medical risk and improve overall physical health.

Please call our office if you have any questions regarding your care. We look forward to continuing your care and helping you keep your mouth healthy and free of disease.

Sincerely,

Dr. X

PATIENT UPDATE LETTER
TO FAMILY PHYSICIAN/CARDIOLOGIST

THE FOLLOWING LETTER IS SENT 1 MONTH AFTER TREATMENT HAS BEGUN:

Dear Patient,

I am very pleased to report that our program of conservative periodontal treatment, supplemented with an oral/systemic low dosage of doxycycline, has been very successful in helping to reduce periodontal inflammation. Being able to achieve this stable condition has hopefully helped to reduce the associated risk for cardiac disease.

Enclosed is a copy of a paper which documented a 50% reduction of CRP in the post MI patient using low dosage doxycycline only with now mechanical therapy. Based upon the positive clinical results seen in these studies, it is very satisfying to know that we have been able to achieve the same result with your patient, combining both protocols.

This will be a major breakthrough for cardiac care. It provides strong evidence for need for Periodontal Risk Assessment, now easily done with the Stat-Ck. System, results previously sent to you, and periodontal care for the at risk cardiac population.

Please consider requesting a Periodontal Risk Assessment for your compromised cardiac patient. Thank you for allowing me to participate in your patient's treatment. I appreciate you keeping me updated with copies of follow-up blood studies when taken.

Regards,

Dr. X

Clinical and Biochemical Results of the Metalloproteinase Inhibition with Subantimicrobial Doses of Doxycycline to Prevent Acute Coronary Syndromes (MIDAS) Pilot Trial

David L. Brown; Kavita K. Desai; Babak A. Vakili; Chadi Nouneh; Hsi-Ming Lee; Lorne M. Golub

BACKGROUND

Vulnerable plaque demonstrates intense inflammation in which macrophages secrete matrix metalloproteinases (MMPs) that degrade the fibrous cap, ultimately leading to rupture, in situ thrombosis, and an associated clinical event. Thus, inhibition of MMP activity or more general suppression of vascular inflammation are attractive targets for interventions intended to reduce plaque rupture. We hypothesized that subantimicrobial doses of doxycycline (SDD) (20 mg twice daily) would benefit patients with coronary artery disease by reducing inflammation and MMP activity and thus possibly prevent coronary plaque rupture events.

METHODS AND RESULTS

We conducted a prospective, randomized, double-blind, placebo-controlled pilot study of 6 months of SDD or placebo treatment to reduce inflammation and prevent plaque rupture events. A total of 50 patients were enrolled, of whom 24 were randomized to placebo and 26 to SDD. At 6 months, there was no difference in the composite endpoint of sudden death, fatal myocardial infarction (MI), non-fatal MI, or troponin-positive unstable angina in SDD compared with placebo-treated patients (8.4% versus 0%, P=0.491). Biochemical markers of inflammation were assessed in plasma at study entry and after 6 months of therapy in 30 patients. In SDD-treated patients, high-sensitivity C-reactive protein (CRP) was reduced by 46% from 4.8±0.6 µg/mL to 2.6±0.4 µg/mL (P=0.007), whereas CRP was not significantly reduced in placebo patients. Interleukin (IL)-6 decreased from 22.1±3.7 pg/mL at baseline to 14.7±1.8 pg/mL at 6 months in SDD-treated patients (P=0.025) but did not decrease significantly in placebo-treated patients. On zymography, pro-MMP-9 activity was reduced 50% by SDD therapy (P=0.011), whereas it was unchanged by placebo treatment.

CONCLUSION

SDD appears to exert potentially beneficial effects on inflammation that could promote plaque stability. These findings should be investigated in a larger study.

To be enclosed with patient update letter to physician/cardiologist

PHYSICIAN UPDATE LETTER: OFFER OF COMPLIMENTARY CONSULT

Dear Dr.,

As a result of achieving a positive response to treatment of chronic periodontal inflammation with conservative non-surgical periodontal management and prescription of low dosage doxycycline for our cardiac risk patients, many physicians have asked me to perform Stat-Ck. Periodontal Risk Assessments for their patients. Because medical insurance presently does not cover this risk exam, I have been asked if I would perform a complimentary exam and consult.

Because of these multiple requests, and recognizing the serious risk of the connection between periodontal and cardiac disease and the critical need for this Risk Assessment, I have decided to provide this service for your patients at no charge. The potential benefit to your patients can be life saving!

If non-surgical periodontal treatment is required to control this risk, I will request you to do blood studies for hsCRP and HbA1c. The decision to have treatment can be made personally by the patient, based upon the test results and risk assessment. Since the treatment is now painless and very comfortable, hopefully those patients who are at risk as a result of this disease will accept recommendations for care.

Enclosed is an abstract of a study published in April, 2009, which showed that atherosclerosis, a potentially fatal cardiac condition, was reversed by conservative periodontal care. Please feel free to give a copy to your patients that you feel may be at risk and in need of evaluation and assessment.

Regards,

Dr. X

(See next page for abstract).

TREATMENT OF PERIODONTAL DISEASE

RESULTS IN IMPROVEMENTS IN ENDOTHELIAL DYSFUNCTION AND REDUCTION OF THE CAROTID INTIMA-MEDIA THICKNESS

The Journal of the Federation of American Societies for Experimental Biology; 2009 April; 23(4): 1196-1204

Stefania Piconi et.al.

Several cohort studies reported a relation of cardiovascular events and periodontal disease. In particular, Porphyromonas gingivalis is associated with the development of atherosclerotic plaques. We verified in a longitudinal study whether inflammation biomarkers, endothelial adhesion molecules, leukocyte activation markers, and intima-media thickness could be beneficially modified by periodontal treatment alone. Thirty-five otherwise healthy individuals affected by mild to moderate parodontopathy were enrolled in the study. Echo-Doppler cardiography of the carotid artery, fluorescence-activated cell sorting analyses on lymphocytes and monocytes, and plasma inflammatory indices were evaluated at baseline and at multiple time points after the periodontal treatment. Results showed that inflammation biomarkers were abnormally increased at baseline. Periodontal treatment resulted in a significant reduction of the total oral bacterial load that was associated with a significant amelioration of inflammation biomarkers and of adhesion and activation proteins. Notably, intima-media thickness was significantly diminished after treatment. Inflammatory alterations associated with the genesis of atherosclerotic plaques are detected in otherwise healthy individuals affected by parodontopathy and are positively influenced by periodontal treatment. Reduction of oral bacterial load results in a modification of an anatomical parameter directly responsible for atherosclerosis. These results shed light on the pathogenesis of atherosclerosis and could have practical implications for public health.—Piconi, S., Trabattoni, D., Luraghi, C., Perilli, E., Borelli, M., Pacei, M., Rizzardini, G., Lattuada, A., Bray, D. H., Catalano, M., Sparaco, A., Clerici, M. Treatment of periodontal disease results in improvements of endothelial dysfunction and reduction of the carotid intima-media thickness.

BIBLIOGRAPHY

1. Golub LM, Wolf M, Robert S, et.al. Treating periodontal diseases by blocking tissue destructive enzymes. J Amer Dent Assoc, 1994; 125:163-169.

2. American Heart Association, 2004. Heart Disease and Stroke Statistics-2008 Update, A Report From the American Heart Assn. Status Comm. And Stroke Statistics Comm. Circulation, 2008: 117:e25-e146.

3. Desvarieux M, Demmer RT, Fundek T, et.al. Periodontal Microbiota and Carotid Intima-Media Thickness-The Oral Infections and Vascular Disease Epidemiology Study(INVEST), Circulation, 2005; 111:576-582.

4. Arbes SJ Jr, Slade GD, Beck J. Association between extent of periodontal attachment loss and self reported history of heart attack: an analysis of NHANES III data, J Dent Res, 1999, 78:1777.

5. Tonetti M, D'Aiuto F, Nibali L, et.al. Treatment of Periodontitits and Endothelial Function. N Engl J of Med, 2007; 356:911-920.

6. Beck J, Eke P, Heiss, Periodontal Disease and Coronary Heart Disease: A reappraisal of the Expo0sure. Circulation, 2005; 112:19-24.

7. Demmer Ryan T, and Desvarieux M. Periodontal Infections and CV Disease. The Heart of the Matter. J Am Dent Assoc., 2006, Vol. 137, No. suppl_2, 145-205.

8. Iwamoto Y, Nishimura F, Soga Y, et.al. Antimicrobial Periodontal Treatment Decreases Serum C-Reactive Protein, Tumor Necrosis Factor-Alpha, But Not Adiponectin Levels in Patients with Chronic Periodontitis. J Periodontol 2003; 74:1231-1236.

9. Korman KS, Page RC, Tonetti MS. The host response to the microbial challenge in periodontics; assembling the players. Periodontology 2000; 1997; 14:33-52.

10. Blankenberg S, Rupprecht HJ,nPoirer O, et.al. Plasma concentrations and genetic variations of matrixmetalloproteinase 9 and prognosis of patients with CVD. Circulation 2000; 107:1579-85.

11. Amabile N, Susini G, Pettenati-Soubayrous T. et.al. Severity of Periodontal Disease correlates inflammatory systemic status and independently predicts the presence and angiographic extent of stable coronary artery disease. J of Int Medicine 2008; 263(6):644-52.

12. Grau AJ,, Becker H, Ziegler CM. et.at.. Periodontal Disease as a Risk Factor for Ischemic Stroke. Stroke, 2004; 35:496-501.

13. American Heart Association, Risk Factors and Coronary Heart Disease, Scientific Position, www.americanheart.org/presenter.jrtml?identifier=4720

14. Genco R, Offenbacher S, Beck J. Periodontal disease and cardiovascular disease. Epidemiology and possible mechanisms. J Amer Dent Assoc., June, 2002; 133:143.

15. Caton JG, Ciancio SG, Blieden TM, et.al. Treatment with subantimicrobial dose doxycycline improves the efficacy of scaling and root planning in patients with adult periodontitis. J Periodontol, 2000, 71:521-532.

16. Gottehrer N, Martin J. The Standard of Caare for Non Surgical Periodontal Treatment for Reducing the Dental Risk for Cardiac Disease, Dent Today. 2007; 26(11):81-84.

17. Brown DL, Desai KK, Vakili BA, et.al. Clinical and Biochemical Results of the Metalloproteinase Inhibition with Subantimicrobial Doses of Doxycycline to Prevent Acute Coronary Syndromes(MIDAS) Pilot Trial. Arterioscler Thromb Vasc Biol 2004; 24:733-738.

18. Gottehrer N, Shirdan TA. A New Guide to Nonsurgical Periodontal Management of Periodontal Disease. Dent Today. 2002; 21:54-60.

19. Cigna Dental Newsroom>News Releases>Are You at Risk for Gum Disease? Cigna Dental's New Online Tool Helps Provide The Answer. 28 August 2008.

20. Albert, DA, Papapanou P, Conicella ML, et.al. The Effect of Periodontal Treatment on Medical Costs. 0058 Abstract, 2006, ADEA/AADR/CADR Meeting.

21. Slepian MJ, Gottehrer N. *Oral Body Infammatory Connection*. Dent Today 2009, 29 (1): 40-42

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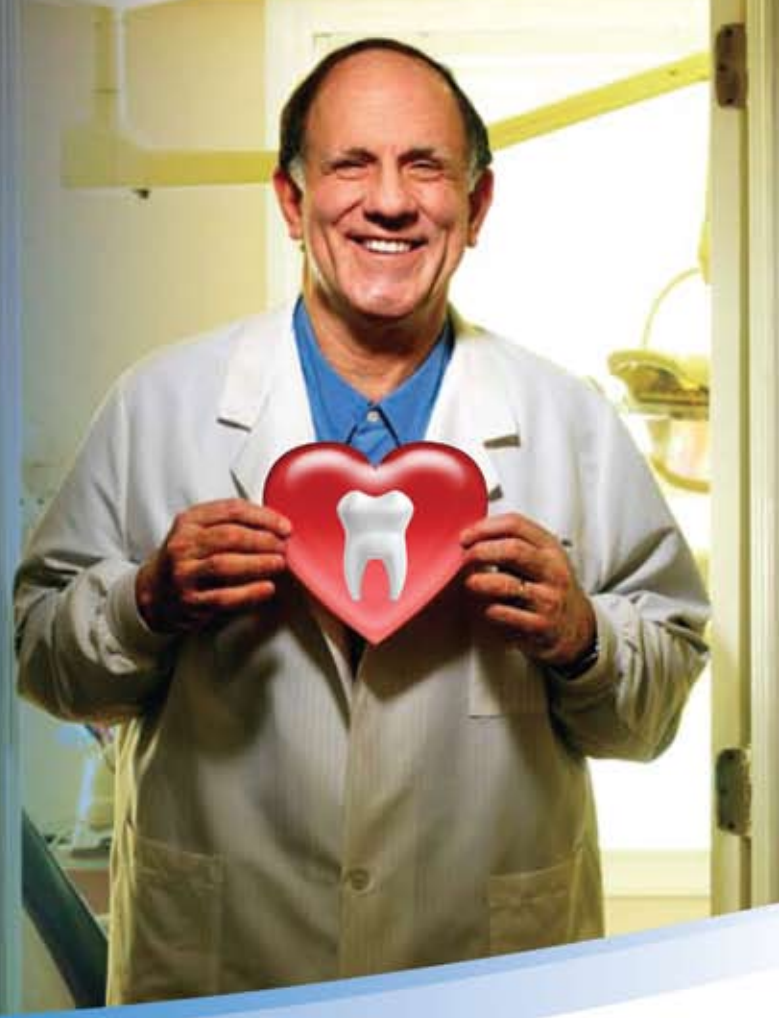
Disclosure: Drs. Gottehrer and Slepian have no financial interest in any of the companies mentioned in this article.

"BRUSH TWICE A DAY"
YOUR DENTIST SAYS IT,
AND PERHAPS SOON, SO WILL
YOUR CARDIOLOGIST.



ADVANCE PRACTICE #2:
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HAVERTOWN, PA

Dr. Neil Gottehrer knows the power of the toothbrush. Not only can it destroy plaque build-up and protect you from gingivitis, but it may also be a vital weapon for fighting cardiovascular disease. His research suggests that with a mixture of power brushing, irrigating and rinsing, patients can reduce their periodontal risks associated with heart disease – which is great news for the eighty million Americans suffering from it. But, to give patients the best care possible, their dentists and their doctors have to communicate. That's why Dr. Gottehrer created the Stat-Ck℠ periodontal risk exam. During this exam, a patient's dental health is examined and assigned a letter grade – A through F. Like any test, failing grades may help warn dentists and physicians of potential heart risks. Dr. Gottehrer works to give people better smiles and healthier hearts, which is why Smile PA is an Advance Practice.

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