The Oral Systemic Connection
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American Heart Association 2014 Statistics

- CVD KILLS 2,150 Americans PER DAY.
- 1 person every 40 seconds.


American Heart Association 2014 Statistics

- Every 34 seconds an American will have a heart attack

AHA Statistics 2014

- The average age of the first heart attack is 64.5/men and 70.3/women
- The average number of years of life lost because of a heart attack is 16.6 yrs.

* Go A et al. Circulation 2014; 129:e28-e292

AHA 2014 Statistics

- Every 40 seconds someone has a stroke.
- Every 4 min someone DIES from a stroke.

* Go A et al. Circulation 2014; 129:e28-e292

CVD claims more lives than all forms of cancer combined.

- Gum Disease can DOUBLE or TRIPLE Heart Attack and Stroke Risk!
Usual Risk Factors of CVD:

- Obstructions in the lumen:
  - Angiogram
  - Stress Test
  - Carotid Duplex Imaging
- Cholesterol
  - HDL
  - LDL
  - Ratio
- BP
- Post Event

Stress Test

"Patients who have normal stress test frequently have extensive atherosclerosis"

*Journal of the ACC, 8/18/2004.*

Calcium in Coronary

In 2006 B.C. the 1st Chinese Medical text (Huang Dee Nai Chang)

“Superior Doctors prevent the disease. Mediocre Doctors treat the disease before evident. Inferior Doctors treat the full blown disease.”

Journal of Cardiovascular Nursing 2015
30 (4), 381-381; Fung D., Depuydt, M.C., Donesen, A.L., Bold, S., Song R.
Achieving Regression of disease in Carotid Arteries

“The Bale & Doneen Method is effective in generating a positive effect on the Atherosclerotic Disease process”

The basics of this method is ED-FROG

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TABLE 1: Components of the Bale/Doneen Method

<table>
<thead>
<tr>
<th>Components</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Education</td>
<td>The patient is educated about the disease state and understands how myocardial infarction and ischemic stroke occur.</td>
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<tr>
<td>2. Disease</td>
<td>If the patient is already classified for the presence of atherosclerosis, using noninvasive testing techniques, to find the most effective way to treat the disease state.</td>
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<tr>
<td>3. Information</td>
<td>Information is the knowledge that the patient requires to make informed decisions about their health.</td>
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<tr>
<td>4. Risk factors</td>
<td>The risk factors are determined and managed for each patient. The treatment is tailored to the individual patient.</td>
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<tr>
<td>5. Optimal goal</td>
<td>The goal is set based on age, gender, and baseline risk factors. The goal is to achieve a low level of risk factors and to maintain these levels over time.</td>
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**Endothelium** if laid flat can cover a tennis court.
- Healthy artery
- Artery with plaque (Disease) - Tennis court allowed cholesterol to collect in artery wall - 1st failure
- Artery with Clot (Rupture) Blood clot formed to heal the cracked tennis court - 2nd failure

Plaque formation is an active process & it's consistently changing over time.
- Some technologies (x-rays) ONLY see hard, calcified plaque while others like ultrasound CIMT can detect soft plaques.
- Young, uncalcified plaque is more dangerous.
- Pt. is evaluated for the presence of atherosclerosis, using non-invasive techniques to find asymptomatic vascular disease. CIMT is routinely done for annual monitoring.

Clot from a Plaque Rupture

Copyright Bale/Dunson Paradigm
Carotid Artery B-mode Ultrasound imaging is a safe, non-invasive and relatively inexpensive means of assessing subclinical atherosclerosis. The technique is valid and reliable.


Plaque >1.3 mm


Inflammation - What triggers the event.

FIRE

INFLAMMATION
Inflammation is Causal

CONFIRMED


ROOT CAUSES

- Low vitamin D
- Obstructive Sleep Apnea
- Inflammatory Diseases
- Insulin resistance
- Periodontal Disease
- Endodontic Lesions
- Lefestyle
- Genetics
- Hyperlipidemia
- Hypertension
- MPO
- Infectious Diseases
- Nicotine Exposure
- Psychosocial
- Lipid
- Metabolic Syndrome

OPTIMAL VS. STANDARD OF CARE

- Sufficient technology to identify subclinical arterial disease & halt atherosclerosis.
- Inflammation is Causal
- Numerous Health Issues produce arterial Inflammation
- Can assess individuals for which particular inflammatory issue is driving disease.
- Conditions can be managed to extinguish inflammation
Can Oral Bacteria cause pregnancy complications?

* Yiping Han Ph.D. Professor of Microbial Sciences in Dental Medicine & Microbiology & Immunology

"Accumulating evidence demonstrates that oral bacteria play a significant yet previously unrecognized role on intrauterine infections."

U.S. Statistics

* March of Dimes - "The U.S. has the highest pre-term birth (<34 wks) rate among the industrialized countries."
* 1981 - 9.4%
* 2006 - 12.8%
* 2008 - 12.3%
* 2009 - 12.2%
Cost?

- "Pre-Term Births cost more than $26 Billion annually in maternal delivery, medical care, and early intervention services, special education services & loss of household and labor market productivity."

- Institute of Medicine (US) Committee on Understanding premature birth and Assuring Healthy Outcomes. Behrman RE (2007)

Case Study I

- Published 2006- Journal of Clinical Microbiology

- Pre-term labor at 24 weeks
- High WBC, Low Glucose Level-> Indicative of Intrauterine Infection.
- Several Amniocentesis did not detect Infectious agents.
- Baby born @ 24.5 weeks. Survived.

- Current paradigm: Intra uterine Infection transferred from vaginal bacteria.
- Used DNA Fingerprinting Technology -> Bergeyella (Common ORAL Bacteria).
- Exact match also found in Mother's amniotic sac & fluid.
Pregnancy Associated Gingivitis

- Post-partum Mother’s Oral cavity – Healthy.
- Patient reported, during pregnancy -> Bleeding gums.

Case Study II

- Published 2010- Obstetrics & Gynecology
- Uneventful pregnancy up to 39 weeks.
- Mother had respiratory tract Infection
- Fever 100 degrees
- 3 days later- No Baby Movement
- Hospital confirmed fetal Death
- Induced still birth

- Pure Culture from baby’s stomach & lungs-> Fusobacterium Nucleatum (Common ORAL Bacteria).
- Baby ingested contaminated amniotic fluid. Sepsis.
Pregnancy Associated Gingivitis

- Post-partum: No gingival inflammation.
- Patient reported excessive gum bleeding during pregnancy.

Recommendations

- Women to seek dental hygiene care PRIOR to pregnancy.
- As well as during pregnancy.
- Oral DNA testing to screen.

Periodontal Bacteria