

Bale/Doneen Live Chat Session

Amy Doneen MSN, ARNP

December 11, 2013

5:30-6:30 pm PST

December 2013



Outline for today's discussion

Primary Prevention

Mark – New AHA/ACC guidelines

Secondary Prevention

Kathy – MPO & Pioglitazone & AHA/ACC guidelines

Sue – Optimal Lifestyle and BNP

Bill – CACS repeat testing

Tertiary Prevention

Chris – CVA – young patient – root causes

Bale/Doneen Method EDFROG - IRA

E education

D disease

F 'fire' arterial inflammation

R root causes

O optimal goals

G genetics

I individual management

R reassess regularly

A annual disease assessment



Redefining Patient's Wellness

Disease Paradigm

1. Primary
2. Secondary
3. Tertiary

Goal of Treatment

1. Prevent Disease
2. Plaque Stability
3. Stop Recidivism

Primary Prevention

50 year old male with a positive premature family history of CAD and CVD

- Fm hx:
 - father had MI at 57 yrs
 - brother stent at 60 yrs
 - paternal grandmother had CVA at 63 yrs
- Personal hx:
 - non-smoker with hx of hyperlipidemia
 - exercise 5 days/wk on treadmill x 4 – 8 miles along with weights and core exercises
 - Mediterranean diet. Doesn't drink alcohol. MVI daily
- Occupation:
 - engineer/farmer, manages stress with exercise

Mark's risk factors:

- **Framingham 10 year risk model:**

- Age: 50 years old 6 points

- TC: 162 mg/dL 4 points

- Non smoker 0 points

- HDL: 43 mg/dL 1 point

- SBP: 118 mm/Hg 0 point

11 points =

8% FRS 10 year risk.

Mark's risk factors:

- **Lipids:**
 - TC: 162, TG: 77, HDL: 43, LDL: 104
 - TC/HDL: 3.8, Apo B: 67
- **Vital signs:** BP 118/80, P: 68, Waist: 38",
 - Height: 5'10", weight: 180 lbs
- **Physical exam:** WNL – EKG, ABI, exam
- **ROS:** negative
- **General health:** CBC, CMP, thyroid all WNL, dental and optical all WNL

In light of the new guidelines published
12/12/2013 (tomorrow officially) – what would
Mark's treatment be right now?

Lipid Therapy Guidelines 12/12/2013

High-moderate intensity statin rx for all:

1. 'Secondary' prevention – proven ASVD due to an event or need for an intervention. High intensity statin
2. LDL-C \geq 190 mg/dL – High intensity statin
3. Diabetic 40-75yo with LDL-C \geq 70mg/dL ('primary') – moderate intensity; if 10 yr. risk $>$ 7.5% - High intensity
4. 'Primary' prevention with LDL-C \geq 70mg/dL & 10 yr. risk \geq 7.5% - high or moderate intensity statin (Mark 8%)

Stone, N. J., et. al. (2013). 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation doi: 10.1161/01.cir.0000437738.63853.7a

So – our job is done?

- Based on the new guidelines – simply place Mark on moderate to high dose statin therapy and move to the next patient.
- Are you comfortable with this? Why not?
 - Disease?
 - Inflammation?

How to find vascular disease in an asymptomatic 50 year old male?

- EXAM: no bruits – carotid, abd, femoral
- CXR: WNL – no microvascular calcification
- ABI: WNL – no PAD
- EKG: NSR –
- SPECT scan per Cardiologist – WNL (EF 60%)
- Is that it? What else can we do to find disease?
- CIMT:
 - Mean CCA IMT: 0.670mm > age by 5 years
 - Max CCA mean IMT: 0.82mm - normal
 - Plaque: none

What else?

Can we stop there?

- CACS: no calcium – zero score
- What is next?
- We know Mark has a slight accelerated atherosclerotic process (cIMT) with no evidence of vascular disease.
- Let's find out why.....

Why does Mark have an accelerated atherosclerotic process and a family history?

- **Insulin resistance?**
 - Metabolic Syndrome: 0/5
 - FBS: 96, A1C: 5.3, Insulin: 8, 2hr OGTT: **135**
- **Lipo(a):** 8
- **Periodontal:** Clear – all pockets < 2 mm and oral DNA neg.
- **Vitamin D:** 81
- **MPO:** 147
- **OSA:** Dx with sleep study – positional “**mild**” – dental device.
- **Genetics:**
 - **Heterozygous for 9P21**
 - KIF 6: TRP/TRP
 - Apo E 3/3
 - LPA: Ile/Ile

Mark's treatment:

- Insulin resistance with impaired glucose tolerance
- Accelerated atherosclerotic process driven by insulin resistance and genetics such 9P21 and TCF7L2. Treatment decisions aided by KIF 6 negative status and Apo E 3/3
- Treatment:
 - Improve lifestyle – add interval training and Apo E 3/3 advice with a dietician
 - Vitamin B3 – Niacin (KIF 6 negative)
 - Omega 3 fatty acids
 - Monitor IR and vascular disease regularly

Do you think NOT putting him on a statin
in 2006 was a wrong move?

Would the current guidelines (which
demand a statin) have been a better
decision for Mark?

How do you know?

Goal of Treatment: NO DISEASE

	4/4/06	5/11/07	5/21/08	5/5/2011	10/12/2012
TC	164	133	149	135	140
TG	77	31	53	73	75
HDL	43	48	51	49	50
LDL	105	79	88	71	74
TC/HDL	3.8	2.8	2.9	2.8	2.9
BP	118/80	112/72	114/74	112/72	110/74
MPO		147	140	156	
Lp-PLA2	150	163	124	116	100
hsCRP	0.9	1.0	0.9	1.9*	0.8
MACR	5.1	4.8	5.0	3.8	4.0
FBS/A1C	96/5.3	89/5.3	92/5.5	95/5.5	98/5.3
2hr OGTT	135	92	102	114	
ALT/AST	43/18	43/31	28/24	39/21	35/20
Creat/GFR	0.9/95	0.9/95	0.9/98	0.9/95	0.8/99
clMT mean	0.67m m	0.64m m	0.65mm	0.64mm	FMT – no plaque
CACS	Zero			Zero	

Now.....6 years later....

Still No statin.....It is now 2013

How is Mark doing?

Visit: 2/12/2013: Mark is now 56 years old

Lifestyle: **Fallen a bit** – not doing as much walking and running due to knee injury. Still working on diet – watching portion sizes closely and working on increase in vegetables.

Sleep: **Not wearing dental appliance**

Meds: Not taking Niacin regularly - **flushing.**

Dental: WNL, last appt Jan 2013, Sonicare 2 x d, flossing.

Vaccines – up to date with all – flu, pneumonia, shingles.

Mark – appt 2/12/2013 – continued.

Objective: Exam WNL, weight, 190, waist 36, Body Fat 23%, Fluid 56%, **Visceral adiposity 11%**, Lipids **TC/HDL 3.1**, BP 112/72, FBS 9, A1C 5.3, Vitamin D 42, HsCRP 0.7, MACR 2.0, **Lp-PLA2: 202**

CIMT: **Slight acceleration** – Mean 0.63mm , Max Mean 0.75mm (from 0.66mm), No Plaque.

Plan:

1. Get back on Niacin (take at dinner)
2. Exercise! Core strength, weight and treadmill
3. Get another sleep study (last 2006)
4. At next visit: OGTT and Recheck Lp-PLA2 (6 weeks).

Mark – appt June 13, 2013.

Subjective:

1. Taking Niaspan with dinner – no problems
2. Back on exercise – 30 minutes 7 days/week average plus core and weights 2 days/week.
3. Sleep Study Update in May 2013 – adjusting treatment

Objective: changes from Feb 2013:

weight, 182 (190), waist 35 (36), Body Fat 21% (22%),
Visceral adiposity 10% (11%),
Lipids TC/HDL 2.8 (3.1), BP 110/68,
HsCRP 1.0, MACR 3.0, Lp-PLA2: 182 (202).
OGTT – 94, 5.3, 1hr 112, 2hr 122.

Plan:

1. Continue Treatment and Lifestyle!
2. Next appointment: Dec 17, 2013 – I'll let you know ☺

Secondary Prevention

Kathy – initial evaluation

Optimal vs Standard of Care

52 y.o. female

- Ht: 5'4", Wt: 112lbs, Waist: 24.5"
- BP: 108/68, P: 72, R: 16

Diagnosis: hyperlipidemia (TC 262 and LDL 161) – doesn't want Rx.

Menopause: going through menopause – no hormone Rx (Dexa WNL)

Meds: ASA 81mg, MVI, Vitamin E, Omega 3, Melatonin.

ROS: Asymptomatic of CV symptoms,

Lifestyle: exercise daily, watches diet closely, non-smoker

FmHx:

- Mom died at 74 – hyperlipidemia, thin, told “died of heart issues”
- Dad died at 72 with Prostate Cancer

Kathy does not want to take medication for her high cholesterol –

Primary has decided to “watch and wait”

Is that ok?

She is a thin, healthy, asymptomatic, non-smoking female.

Standard of care vs Bale/Doneen

Standard of Care

■ Framingham:

Age: 52	6 pts
TC: 262	5 pts
Smoking: no	0 pts
HDL: 90	-1 pt
SBP: 108	<u>0 pts</u>
	10 points

FRS: 1% 10-year risk

■ Reynolds:

Age
Smoking
SBP
TC
HDL
HsCRP: 0.7
Fm Hx “mother or father <u>with MI < age 60” – no</u>

RRS: 1% 10-year risk.

Lipid Therapy Guidelines 12/12/2013

High-moderate intensity statin rx for all:

1. 'Secondary' prevention – proven ASVD due to an event or need for an intervention. High intensity statin (Kathy – no)
2. LDL-C \geq 190 mg/dL – High intensity statin (Kathy LDL 161 - no)
3. Diabetic 40-75yo with LDL-C \geq 70mg/dL ('primary') – (Kathy no) moderate intensity; if 10 yr. risk $>$ 7.5% - High intensity
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Lipid Therapy Guidelines 12/12/2013

If statin not indicated with one of the four criteria, may consider additional factors influencing risk:

1. LDL-C ≥ 160 mg/dL or other evidence of genetic hyperlipidemias (Kathy – LDL of 161 - yes)
2. Famhcx: first degree relative with ASCVD < 55 yo male or < 65 yo female (Kathy – no)
3. C-reactive protein > 2 mg/L (Kathy – no)
4. CAC score ≥ 300 Agatston units or ≥ 75 percentile for age, sex, and ethnicity (Kathy – no: zero score)
5. ankle-brachial index < 0.9 (Kathy – no)
6. elevated lifetime risk of ASCVD (Kathy - let's find out)

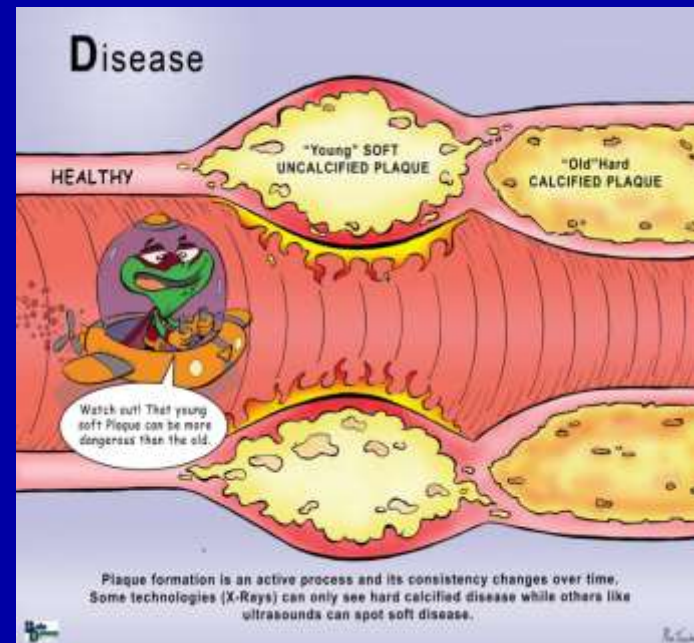
Big Question.....

- So – based on the 2012/2013 guidelines – it is suggested that Kathy go on Statin therapy at moderate/high dose
- What do you think of that?
- Would you like to know if Kathy has disease?

Disease –

Does Kathy have atherosclerosis?

- **ABI:**
 - R: 1.0, L: 1.0 = WNL
- **EKG:**
 - Normal Sinus Rhythm.
- **Coronary Calcium Scan (4/2005) - Zero Score.**

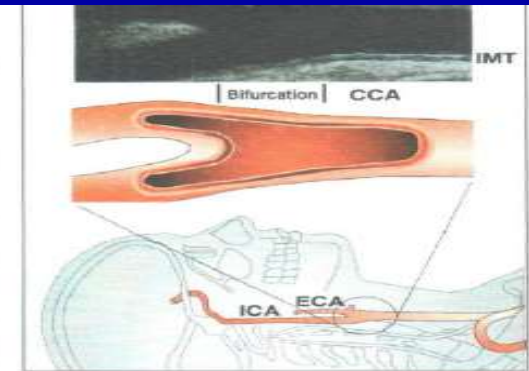
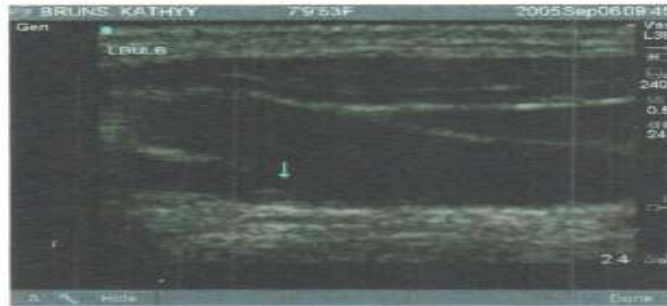


Zero CACS does NOT Rule Out an ACS

- Data from Multi-Ethnic Study of Atherosclerosis (MESA)
- Obstructing coronary disease found in 7 pts with chest pain who had zero CACS
- CACS misses soft plaques, which play an important role in ACS

Rosen, B.D., et. al. *J Am Coll Cardiol Img* 10/2009; 2:1175-1183.

Age at Exam: 52
 Gender: F
 Ethnic Origin: White or Other
 Patient ID: 7'9'53F
 Exam. Date: 09-06-2005
 Report Created: 09-06-2005
 Referring Dr.: AMY DONEEN



Average CCA Mean IMT:

Average of individual mean IMT measurements

0.704mm

Average CCA Mean IMT Compared to Female Population



Average CCA Max Region IMT:

Average of individual 1 mm Max Region measurements

0.835mm

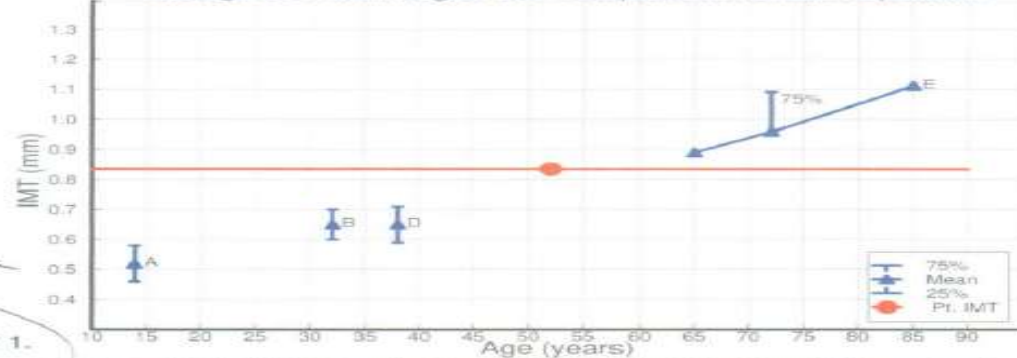
≥ 1.2mm = plaque

Comments:

-SOFT PLAQUE AT THE LEFT BIFURCATION MEASURING 1.2MM AND 1.5MM.
 MAXIMAL IMT AT THE RIGHT BIFURCATION MEASURES 1.0MM.

(PBS - 3.7)

Average CCA Max Region IMT Compared to Female Population



A Tonstad, S (1996) Arterioscler Thromb D Tonstad, S (1998) Eur J Clin Invest
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 C Oren, A (2003) Arch Intern Med.
 See User Guide for complete references. All reference data is 10mm distal CCA and is primarily from white populations with no coronary history. Consult your Doctor for information on race differences.

Patient Identification



Primary

No disease.

Your gutter is cat free and we work to keep it that way.



Secondary

Disease but no heart attack or stroke.

The cat is in the gutter. We need to make sure it doesn't get out



Tertiary Prevention

Patient has had a heart attack or stroke.

The cat has gotten out of the gutter once before; we need to make sure it doesn't happen again.



Sub-clinical Atherosclerosis Predicts CV Risk

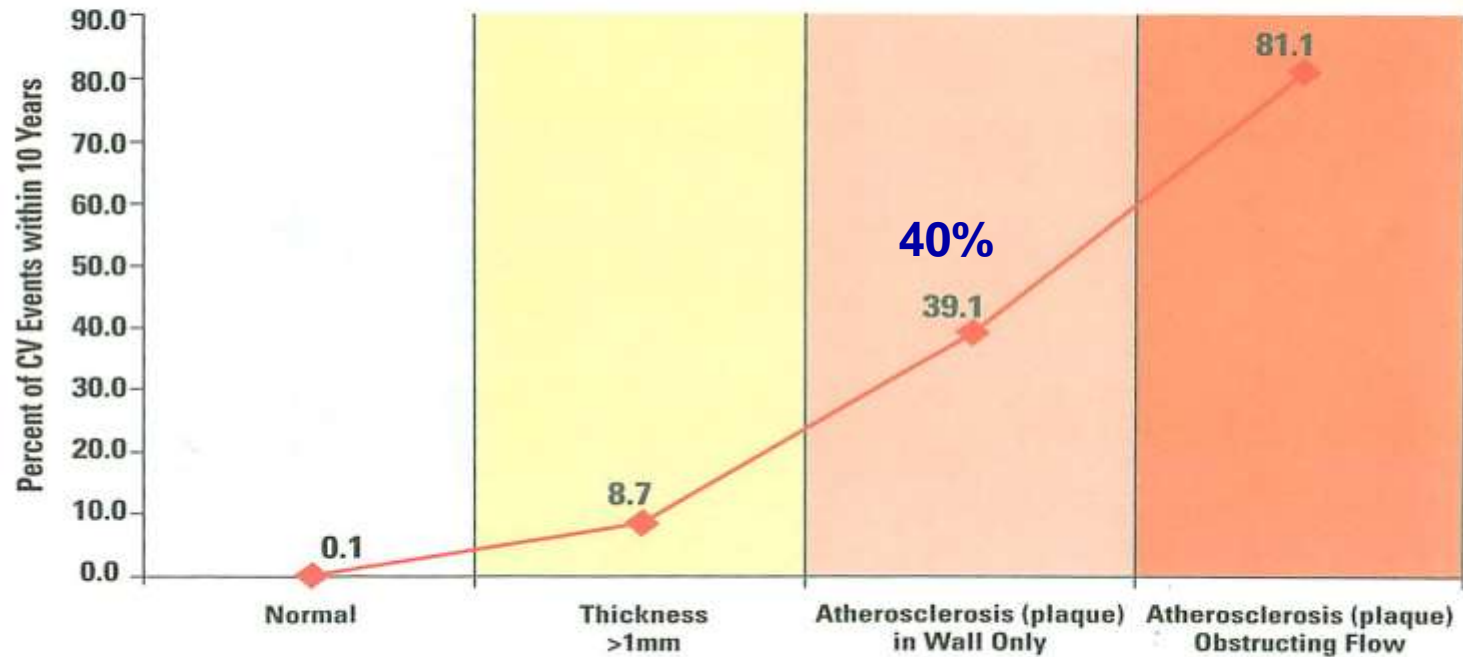
- 10,000 healthy subjects followed 10 yrs.; 40% female; aged 35-65 yo; base line B-mode US carotids and femorals
- No treatment allowed over 10 years -
- Class 1 (normal artery): 7989 subjects – 10 CV events
- Class 2 (wall thickening): 930 subjects - 81 CV events
- **Class 3 (disease present): 611 subjects – 239 CV events**
- Class 4 (stenotic disease): 470 subjects – 381 CV events
- Respective incidence: 0.1%; 8.6%; 39.8%; 81.1%

Belcaro, G., et. al. CAFES-CAVE Study. *Atherosclerosis* 2001. 156:379-387

The Risk of Not Treating Plaque

What Happens If You Don't Treat Atherosclerosis?

Percent Cardiovascular Events¹ Within 10 Years by Ultrasound Findings²
in 10,000 Asymptomatic Patients with No Diabetes, No High Blood Pressure, No Elevated Cholesterol, and No Treatment



¹ Cardiovascular events defined as death or cardiovascular complications including heart attack or stroke, requiring hospital admission and treatment.
² CAFES-CAVE study in 10,000 low risk men and women between 35 & 65.
Belcaro, G. et al. / *Atherosclerosis* (2001), 156:379-387



Belcaro, G., et. al. *Atherosclerosis* 2001. Vol. 156:379-387

Copyright Bale/Doneen Paradigm



So – we now believe...

Kathy does have risk for an event and statin therapy is ONE treatment to assist in her risk reduction but.....is it enough? Also – what statin should we chose and at what dose?

What caused Kathy's Disease? Is mono-statin therapy the answer?

Insulin resistance:

Metabolic Syndrome: 0/5 – no
TG/HDL: 0.8 – no
FBS: 88, A1C: 5.7, Insulin: 3 – no
2hr OGTT: **119 - borderline**

Lipo(a):

55 – yes – LPA negative

Vitamin D:

32 – (goal: 40-60)

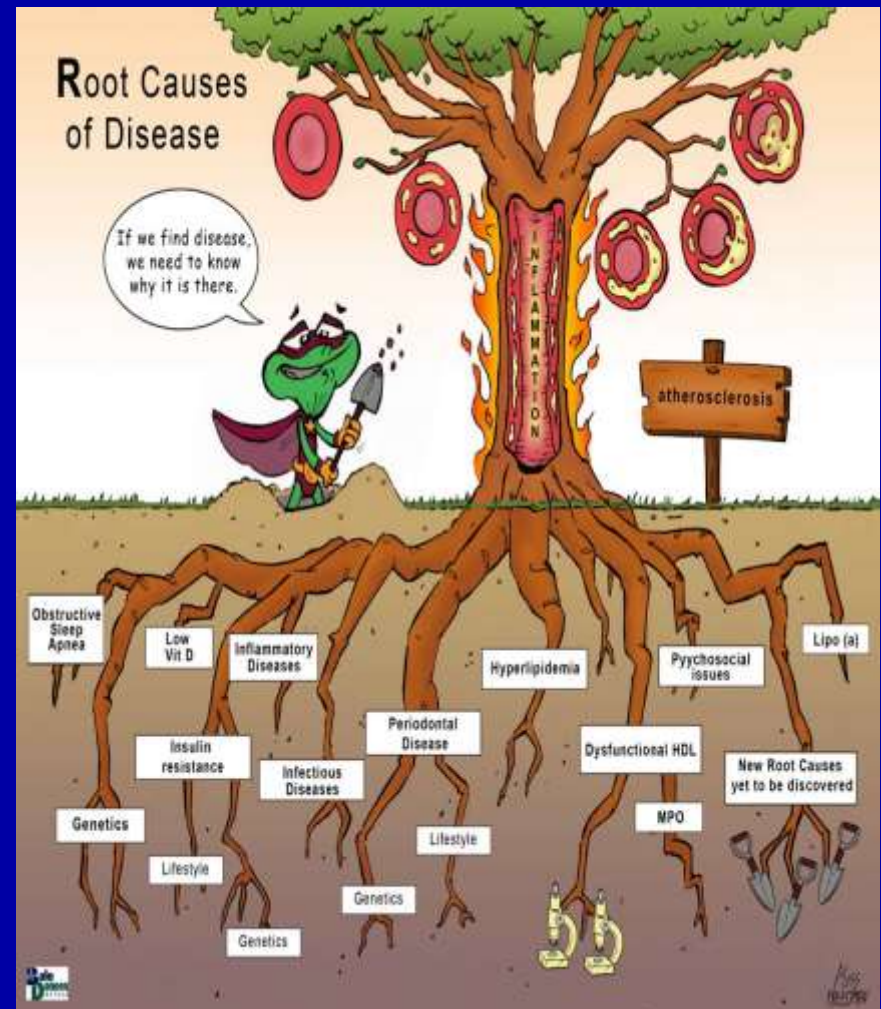
MPO:

1182 – yes

KIF 6: **negative**

ApoE: **4/4**

9P21: **+/+**



Kathy - Inflammation

- Inflammation:
- Endothelial:
 - hsCRP: 0.7 mg/L
 - Microalb/creat: 10
 - Fibrinogen: 468
- Intima:
 - Lp-PLA-2: 236
 - MPO: 1182



Arterial Inflammation Precedes Calcification

- 137 pts; age- 61 ± 13 yrs; 48.1% men; serial PET/CT scans 1–5 yrs apart; thoracic aorta focal arterial inflammation was prospectively (baseline) determined by PET/FDG
- A blinded investigator evaluated calcium deposition on the baseline and follow-up computed tomographic scans along the same standardized sections of the aorta.
- A vascular segment was classified as either with or without subsequent calcification.

Abdelbaky, A., et. al. (2013). Focal Arterial Inflammation Precedes Subsequent Calcification in the Same Location: A Longitudinal FDG-PET/CT Study. *Circulation: Cardiovascular Imaging*, 6(5), 747-754.

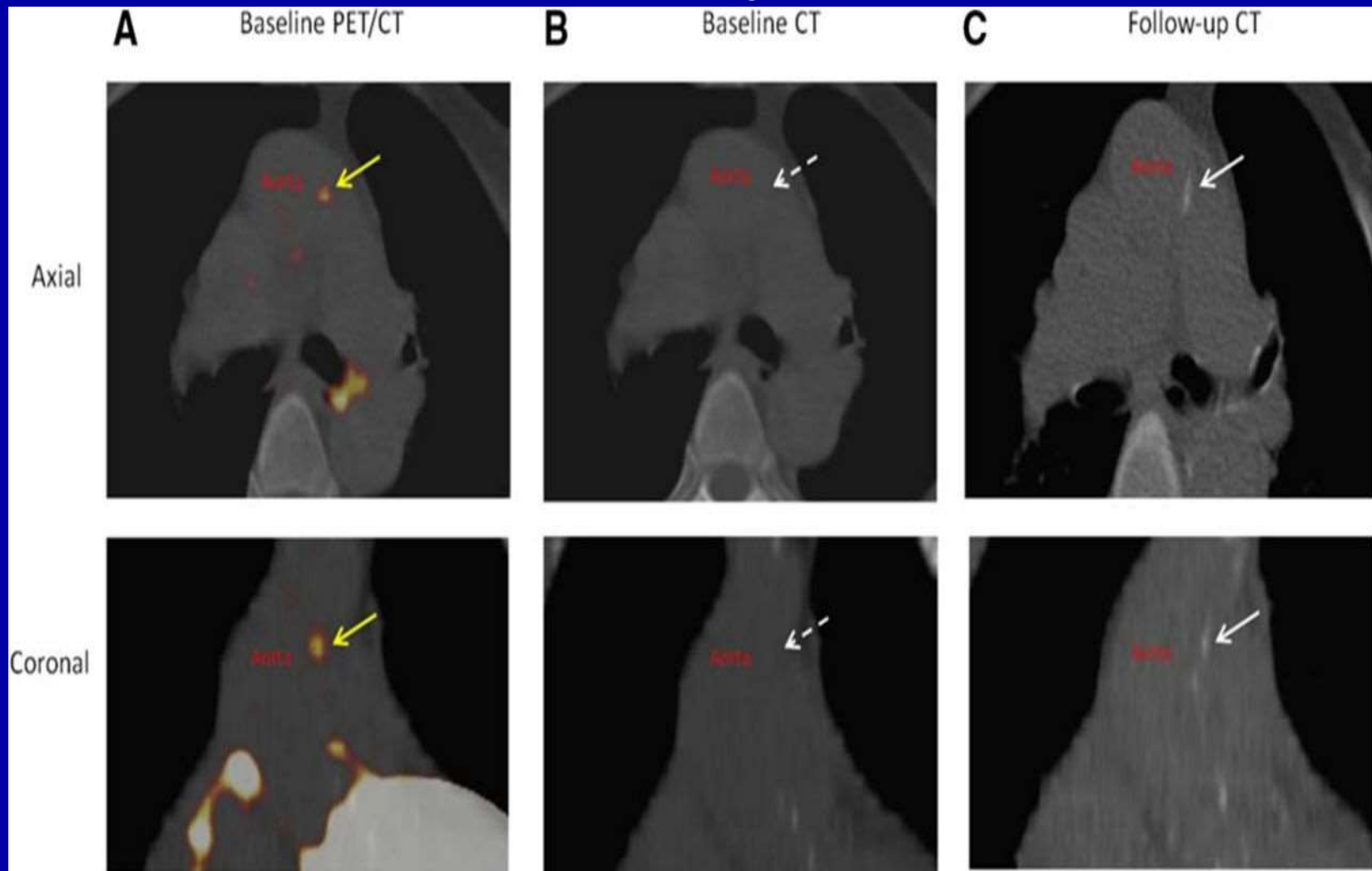
Arterial Inflammation Precedes Calcification

- Across all patients, subsequent Ca deposition was associated with the underlying inflammatory signal, measured as standardized uptake value with OR of 2.94 (95%CI- 1.27-6.89) or as TBG ratio with OR 2.59 (95% CI, 1.18-5.70) p values of 0.01 and 0.02 respectively – adjusted for CV risk factors.
- First-in-human evidence that arterial inflammation precedes subsequent Ca deposition.

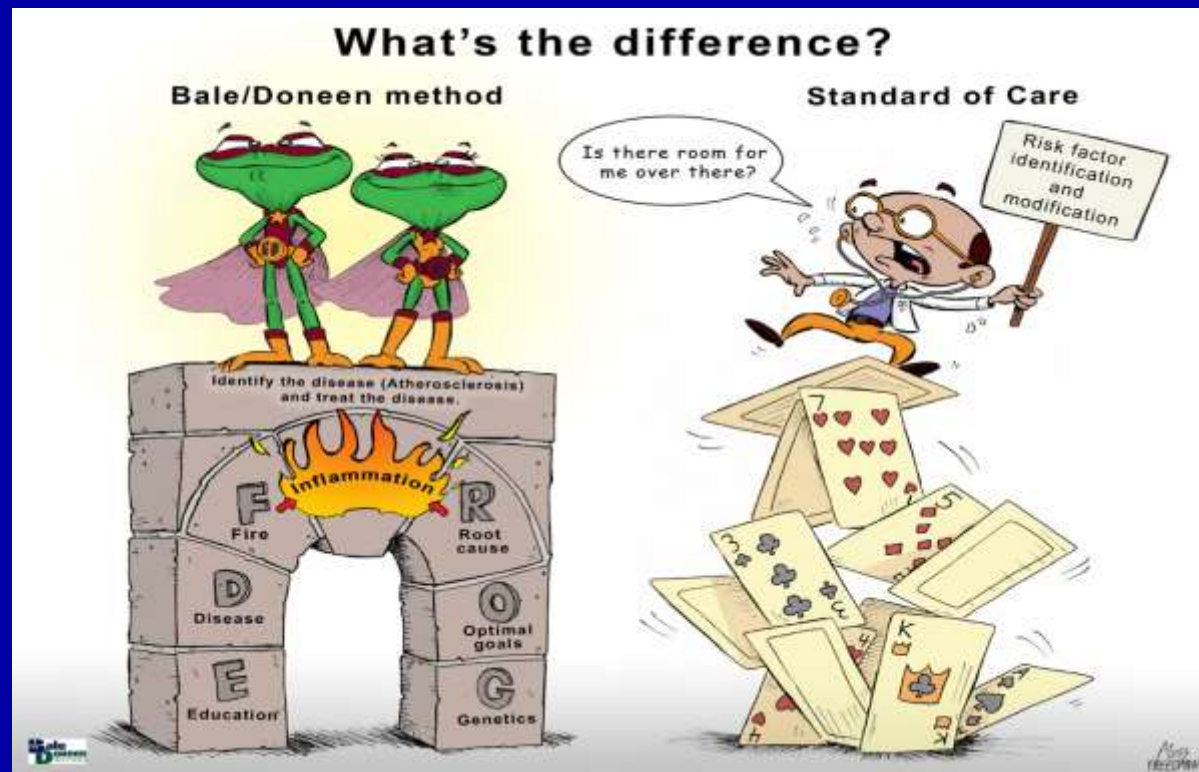
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Arterial Inflammation Precedes Calcification

Baseline (PET) and sequential (CT) images of incident calcium deposition.



Education / Disease / Fire / Roots



Is the Standard of Care sufficient for Kathy?

Even with the updated guidelines – the standard of care remains tenuous.

Kathy's Risk:

- Standard of Care:
- Healthy 52 y.o. female:
 - Hyperlipidemia
 - BP: 108/68
 - FRS: 1% 10 year risk
 - RRS: 1% 10 year risk
 - ROS: none
 - FmHx:
 - Vague – mom d 72.
- Bale/Doneen Method:
- ASVD – active & unstable
- 9P21 +/-, KIF 6 negative
- Apo 4/4
- Borderline IR with OGTT
- MPO
- Lipo(a)
- High Lp-PLA2 , MACR. fibrinogen
- HIGH RISK

Treatment Plan

Optimal care = individualized

Standard of Care:

Continue with lifestyle plan and get annual lipid testing.

With new guidelines:

Use moderate to high dose **statin** because LDL > 160 but **NO**

TREATMENT GOALS

Bale/Doneen Method Plan:

Where do we start?

1. Disease/inflammation!
2. Lifestyle
3. One medication at a time and monitor response for effect and safety.

Take step-wise approach to treatment...

1. Kathy is Apo E 4/4 – only weighs 112 pounds –
be careful and work with a dietitian to make plan.
2. Education on importance of health maintenance.
Secondary Prevention: vaccines, dentist Q 3-6 months,
sleep 6-8 hours per night.
3. Exercise – Education – Likely to not change her lipid profile
(hyperlipidemia) due to 4/4. Exercise is VERY important for her
borderline IR.
4. Supplements – be cautious of those that lower BP –
Blood Pressure reduction - dark chocolate & hibiscus tea,
Interstitial Cystitis - cinnamon (use caution)

Disease/Inflammation:

1. Aspirin 81 mg daily with follow-up response test.
2. Ramipril 2.5mg daily – slow titration (ended up on 5 mg/day)
3. Pravastatin 40 mg daily (2005) – KIF 6 neg (2007)

Clinical Significance of *KIF6* Testing

***KIF6* carriers- may have higher life time CV risk**

1. Maintain a disease treatment platform. (EDFROG)
2. Any statin is beneficial

***KIF6* noncarriers**

1. Still can be at risk: monitor for disease
2. May want to favor statin therapy with simva or rosuva

Disease/Inflammation:

3. Pravastatin 40 mg daily (2005) –
switched to Rosuvastatin 10 mg in 2007 due
to KIF 6 neg

Root Causes

Lipo (a) – Niaspan, L-carnitine (stopped in 2013)

Insulin resistance - lifestyle

Myeloperoxidase - Pioglitazone 7.5mg (added 2010)

Goal of Treatment: Inflammation

<u>Risk Factors:</u>	<u>2010</u>	<u>2011</u>	<u>11/12</u>	<u>12/6/13</u>
TC: 262 (2005)	200	175	199	196
TG: 72	58	49	57	37
HDL: 90	100	114	106	113
LDL: 158	79	51	82	76
Apo B: 107	54	53	58	63
Lipo(a): 55	43	37		38
OGTT: 119		110		101
A1C: 5.7	5.9	5.6	5.9	5.8
 <u>Inflammation:</u>				
hsCRP: 0.7	0.2	0.5	0.2	0.3
MACR: 10	N/A	N/A	N/A	N/A
Fibrin. 468	450	382	400	376
PLAC: 236	174	158	195	163
MPO 1182 - 1080	Pio 7.5mg	782 - 640 - 552 - 541 - 365		347

Kathy - Initial cIMT 9.6.2005

Age at Exam: 52
 Gender: F
 Ethnic Origin: White or Other
 Patient ID: 7'9'53F
 Exam Date: 09-06-2005
 Report Created: 09-06-2005
 Referring Dr.: AMY DONEEN

62	← Arterial Age	0.70	← Your IMT
52	← Your Age	0.62	← Normal IMT

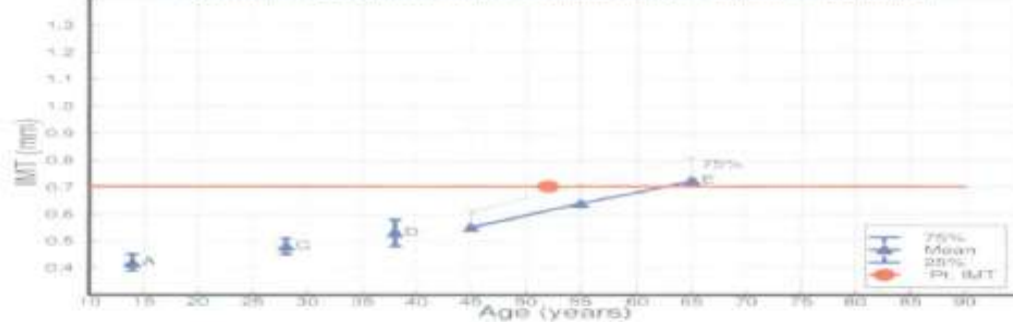


Average CCA Mean IMT:

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Average CCA Max Region IMT:

Average of individual 1 mm Max Region measurements

0.835mm

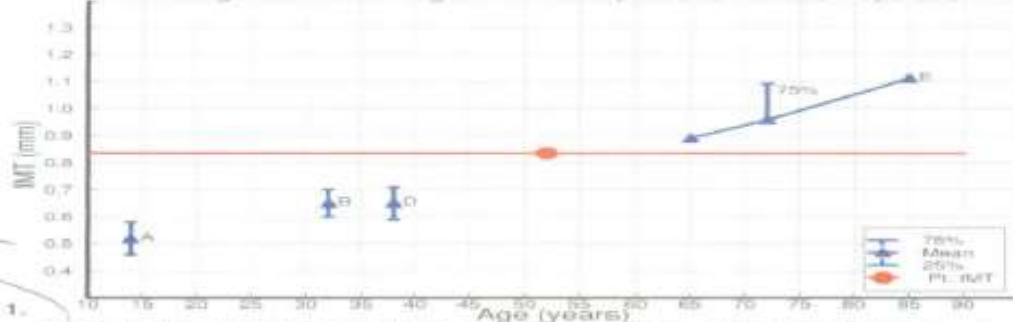
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Comments:

-SOFT PLAQUE AT THE LEFT BIFURCATION MEASURING 1.2MM AND 1.5MM.
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See User Guide for complete references. All reference data is 10mm distal CCA and is primarily from white populations with no coronary history. Consult your Doctor for information on race differences.

Kathy - recent (8 yrs later) 12.5.2013

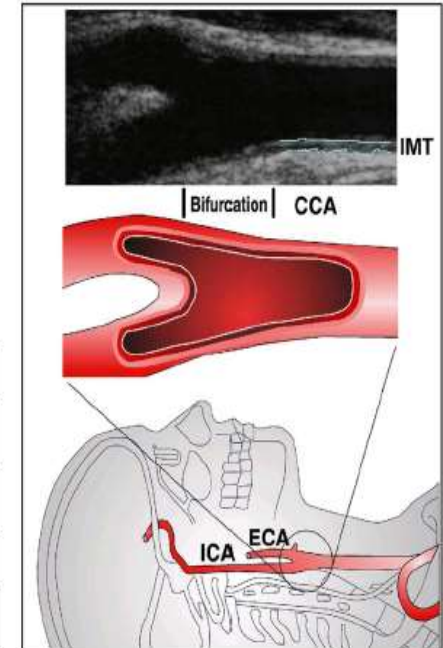
Patient Name: **KATHLEEN**
 Gender: **F**
 Date of Exam: **12/5/2013**
 Date of Birth: **7/9/1953**
 Referring Physician: **HEART ATTACK PREVENTION CLINIC**

Patient Age	60	Patient IMT	0.68 mm
Arterial Age	59	Normal IMT	<.50 mm

CV Event Risk

All measurements in mm

Test Criteria:	Normal	Moderate	High	Last Visit ⁺	Alert Value*
Early Event Risk ⁺⁺			2.1		2.1
Average CCA Mean IMT	0.68				0.73
Average CCA Max Region		0.76			0.75
Plaque Burden ^{**}			3.6		



Comments:

The following values are the largest intima-media thickness (IMT) measurements found in each carotid artery segment. Any measurement equal to or 1.3mm is defined as 'plaque' and is characterized as being: **S** = Soft; **H** = Heterogeneous; or **E** = Echogenic (includes mineral deposits like calcium). All measurements are in millimeters.

Right CCA .8; Bulb 1.5 H; Internal Carotid .8
 Left CCA .9; Bulb 2.1 H; Internal Carotid .7
 Doppler was used bilaterally.

Note: no more soft plaque – that is goal.

Secondary Prevention

Using NT-ProBNP and other markers for our senior athletes.....

Our eyes are open – this problem exists and we are ALL vulnerable.



Atherosclerosis
is not selective of
body types....it
can happen to
anyone.



Winning the senior world cup freestyle swim with cardiovascular disease!



Sue's next goal:

- May 1-4, 2014 – heading to Nationals competing in the freestyle 1650m, 500m, 200m, 200m IM, and the 200m back stroke.
- Goal: Aiming to beat the world record in the 65-69 year old Women in the 1650m free.
- Training schedule: INTENSE!

Just to get an idea of level of fitness:

Visit on 12.6.2013:

124.5 pounds

19.3% body fat

58.2% hydration

97 pounds lean muscle

Vital signs:

BP 102/60

Resting pulse: 48

Current age: 68 years



Initial IMT and Treatment

6.28.2006

Mean CCA IMT: 0.848mm

Max Mean: 1.024

plaque: PBS: 3.9 mm soft

Age Match: +17 years (60 with 77 yo arteries)

Treatment since 2006 – minor adjustments.....

Lifestyle – Apo E 4/3

Aspirin 81mg

Simvastatin/Niacin 40/1000

Ramipril 10mg

Omega 3

Vitamin D

Copyright Bale/Doneen Paradigm

Most Recent IMT (9.17.2013)

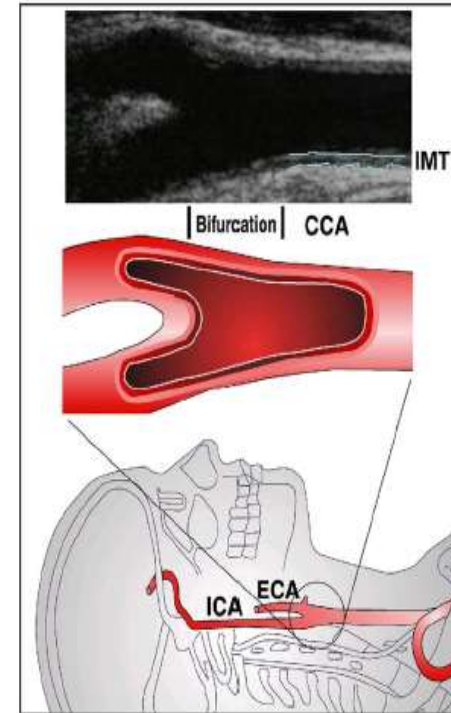
Patient Name: , SUZANNE
 Gender: F
 Date of Exam: 9/17/2013
 Date of Birth: 4/20/1945
 Referring Physician: HEART ATTACK PREVENTION CLINIC

Patient Age	68	Patient IMT	0.73 mm
Arterial Age	65	Normal IMT	<.50 mm

CV Event Risk

All measurements in mm

Test Criteria:	Normal	Moderate	High	Last Visit ⁺	Alert Value*
Early Event Risk ^{**}	1.9				2.5
Average CCA Mean IMT		0.73			0.73
Average CCA Max Region		0.83			0.75
Plaque Burden ^{**}			4.8		



Comments:

The following values are the largest intima-media thickness (IMT) measurements found in each carotid artery segment. Any measurement equal to or 1.3mm is defined as 'plaque' and is characterized as being: S = Soft; H = Heterogeneous; or E = Echogenic (includes mineral deposits like calcium). All measurements are in millimeters.

Right CCA 1.0; Bulb 1.9 H; Internal Carotid 1.0
 Left CCA .8; Bulb 1.4 H; Internal Carotid 1.5 E
 Doppler was used bilaterally.

So.....training – is it safe?

Her training varies depending on the National swim season – she remains asymptomatic.

Baseline NT Pro BNP

80 in 2009

75 in 2010

In 2012 Sue trained for a large race in Hawaii –
open water very tough swim –

4/11/2012 NT Pro BNP went up to 180.2

4/12/2012 EKG WNL

Echocardiogram – WNL

Instructed to rest, hydration, Co-Q10

6/18/2012 NT ProBNP down to 130

11/19/2012 NT ProBNP down to 98

Most recent appointment 12.6.2013

NT ProBNP: 152

All inflammatory markers stable

Asymptomatic – on track to break the record in the 1650m freestyle swim 65-69 y.o. women

Plan –

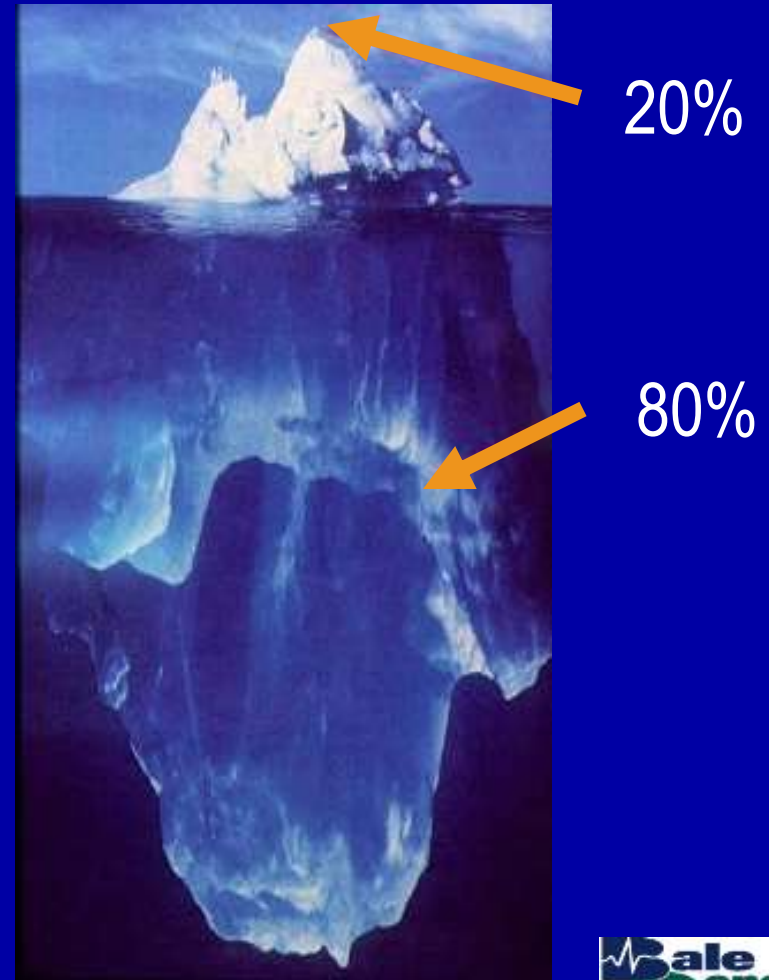
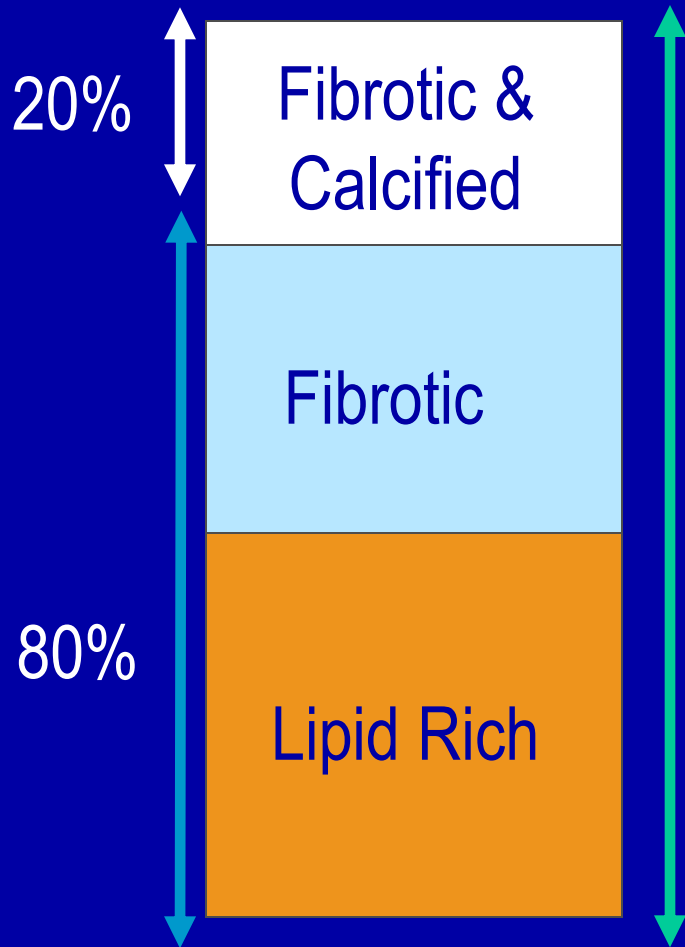
hsTroponin and Galectin 3 - pending

Rocky -

Coronary Calcium Scanning – how high is too high?

How to recognize stable disease.

Coronary Artery Calcium Testing - CACS



Rocky

Family History

M.GM – CVA (d), dementia

M.GF – CVA (d) – 1st in late 50's

P. GM – MI (d) age 65

Brother – T2DM and MI at age 58 (a)

Mother – CVA (+) AF, hx and macular degeneration

Personal history

Current age 65 years

Active, daily exercise, good diet, non-smoker

Medical Hx: back issues - fusion, PPIs since 1997

Coronary Imaging

1998: Electron Beam Tomography

Coronary Calcification Score: 208

Treatment: Pravastatin 40mg

Ramipril 10mg

Aspirin 81mg

Lifestyle

2001: Coronary Calcium Screening

EBCT – coronary calcium Score: 326.50

Rocky

Additions to treatment over the years since first EBT in 1998

Treated for Insulin Resistance –

Added Rosiglitazone 4mg 9.22.2004

Then switched to Pioglitazone 2005 – currently taking ½ of a 45mg tablet daily

9P21 – negative

KIF 6 – negative

IL-1 – positive with + periodontal pathogens – treated.

Lipo(a) – negative

LPA - negative

AAA, ABI, Echo, EKG – All WNL

Following disease with CIMT

9.24.2003

Mean CCA 0.731mm – age 55/age match 59

No plaque identified

12.29.2005

Mean CCA 0.711mm – age 57/age match 57

No plaque identified

10.15.2009

Mean CCA 0.77mm – age 61/age match 63

Plaque: 1.9mm Heterogeneous

11.9.2011

Mean CCA 0.79mm – age 63/age match 65

Plaque: 1.9mm, 1.4mm Heterogenous

2/12/2013

Mean CCA 0.79 mm – age 64/age match 62

Plaque – all echogenic and heterogeneous

What about his coronary calcium?

1998: Electron Beam Tomography

Coronary Calcification Score: 208

2001: Coronary Calcium Screening

EBCT – coronary calcium Score: 326.50

11/22/2013: Cardiac CT for CAC

LMCA:	54
LAD:	665
Circ:	240
RCA:	<u>797</u>
Total:	<u>1756</u>

Is Rocky stable – let's look at labs from 11.12.2013

TC/HDL	2.0
Apo B	72
FBS	102
A1C	5.7
F2-Iso	0.66
HsCRP	1.2
MACR	N/A
MPO	186
Lp-PLA2	136
NT ProBNP	98
Galectin 3	11.4

Independent Effects of Risk Factors and Treatment on Carotid Intima-Media Thickness Progression in a Community Practice

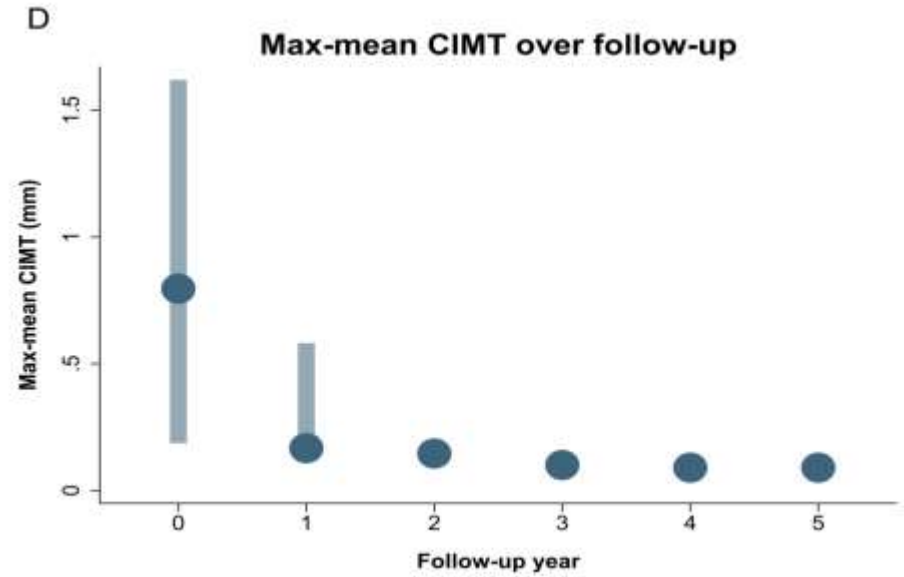
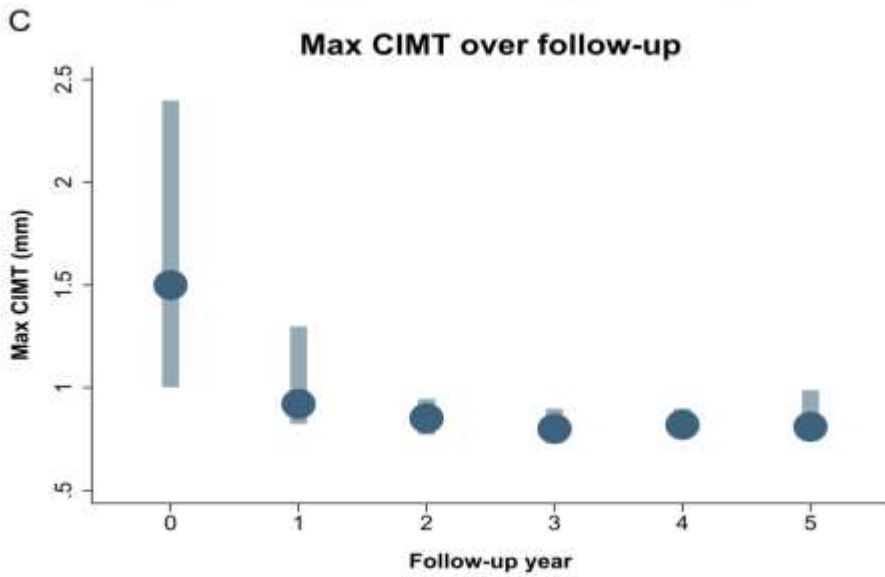
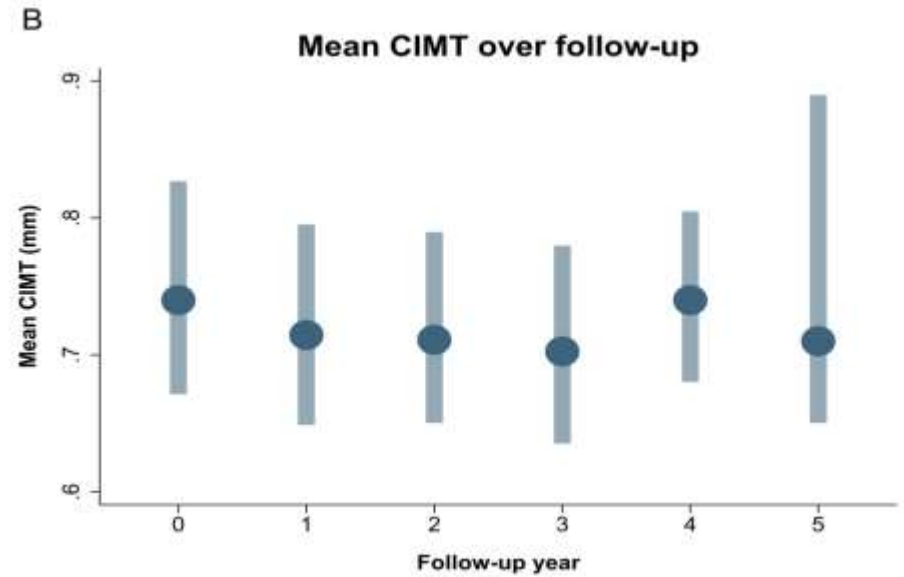
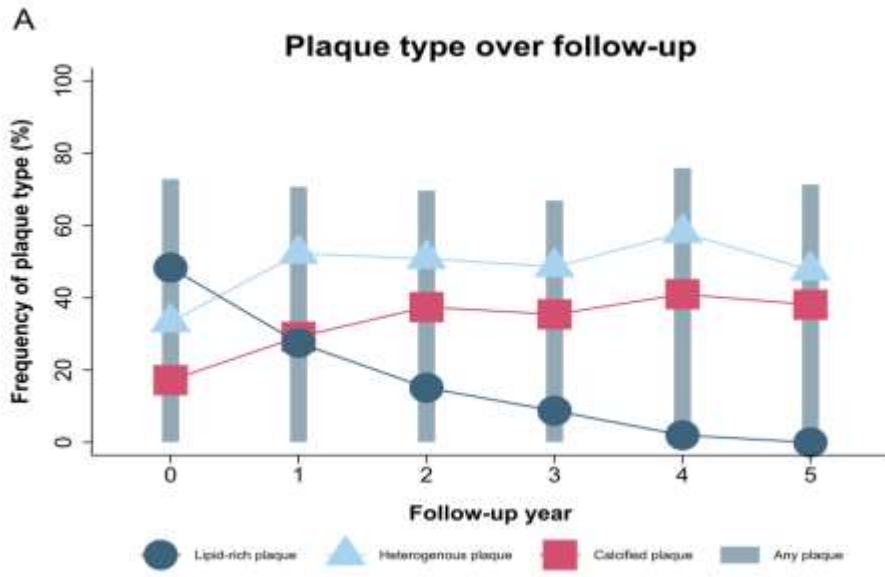


Birju Patel, MPH, Michael Blaha, MD MPH, Amy Doneen, RN BSN MSN ARNP,
Brad Bale, MD, Steven Jones, MD



Copyright Bale/Doneen Paradigm





Tertiary Prevention

Chris: 41 year old man – non-smoker

Married, father of two children –

Daughter 8, Son 6 years

First Stroke 4/2012 – Carotid Procedure – C.E.

Second Stroke 6/2013 –

Treatment: Lisinopril 2.5mg – since 2006 - HTN

At time of the stroke: Plavix 75mg (ASA allergy),

Vascular Health = Brain Health



Copyright: Bale/Doneen Method

Chris – age 41

41 y.o. male

- Ht: 5'8", Wt: 195lbs, Waist: 34"
- BP: 144/88, P: 82, R: 20

Diagnosis: CVA x 2 - ?Why?

ROS: residual facial symptoms, concentration, snoring (Epworth 6)

Lifestyle: watches diet closely, non-smoker, afraid to exercise

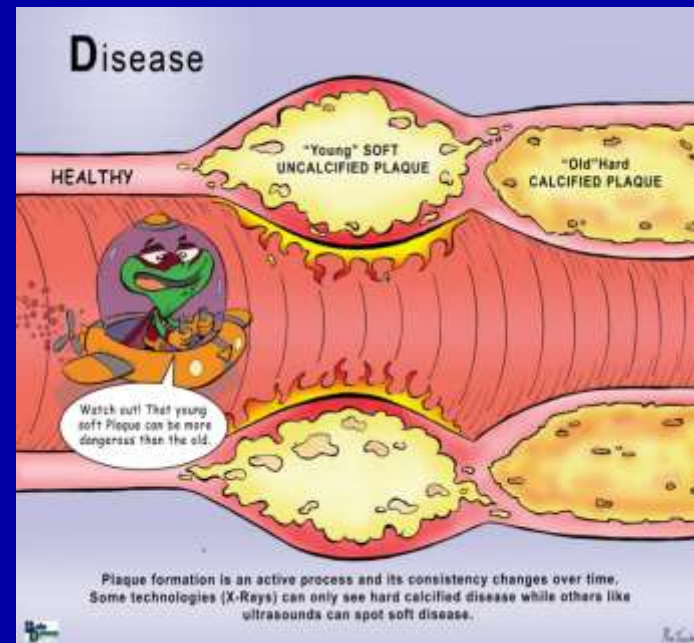
FmHx:

- Mom (a) at 68 – hyperlipidemia, no treatment
- Dad died at 60 with pancreatic cancer
- Sister (a) at 45

Disease – 9/17/2013

Establish a Baseline IMT to follow

- **ABI:**
 - R: 1.06, L: 1.05 = WNL
- **EKG:**
 - Normal Sinus Rhythm.
- **IMT:**
 - Mean CCA 0.69mm = 54 year old male
 - Max: 0.81mm
 - PBS – 3.5mm soft/heterogeneous



Chris wants to know why? Is his treatment adequate to prevent a 3rd stroke?

Insulin resistance:

Metabolic Syndrome: 0/5 – no

TG/HDL: 0.6 – no

FBS: 106, A1C: 5.1, Insulin:18 – yes

OGTT: 129/122 - yes

Lipo(a):

22 – no – LPA negative

Vitamin D:

23 - yes – (goal: 40-60)

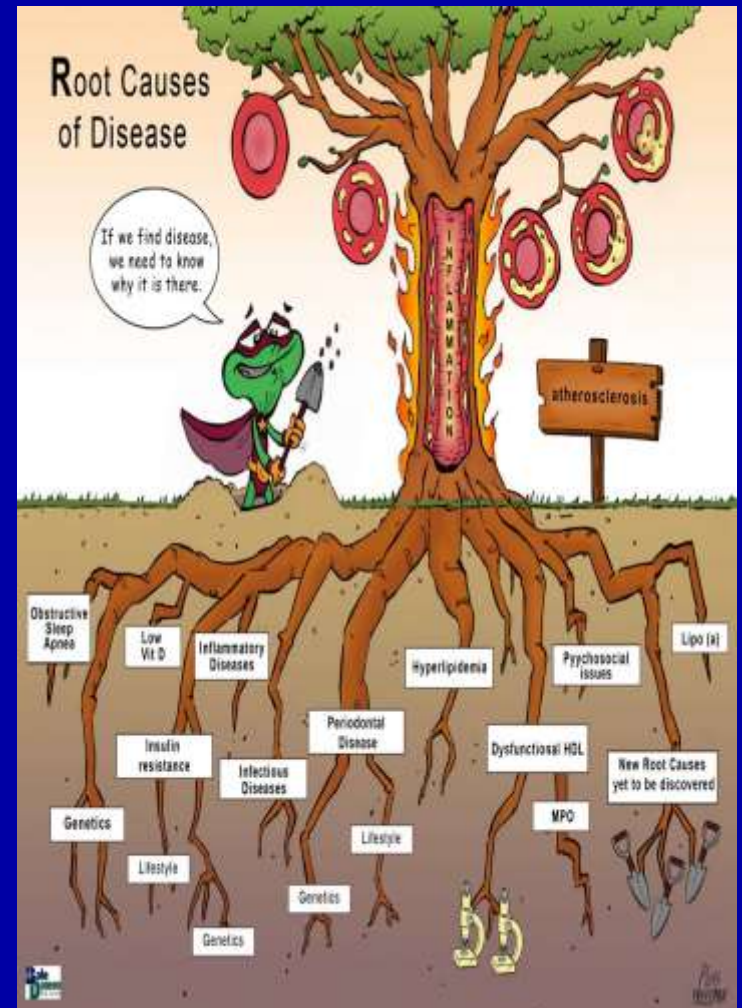
MPO:

974 – yes

KIF 6: +/-

ApoE: 3/3

9P21: +/-

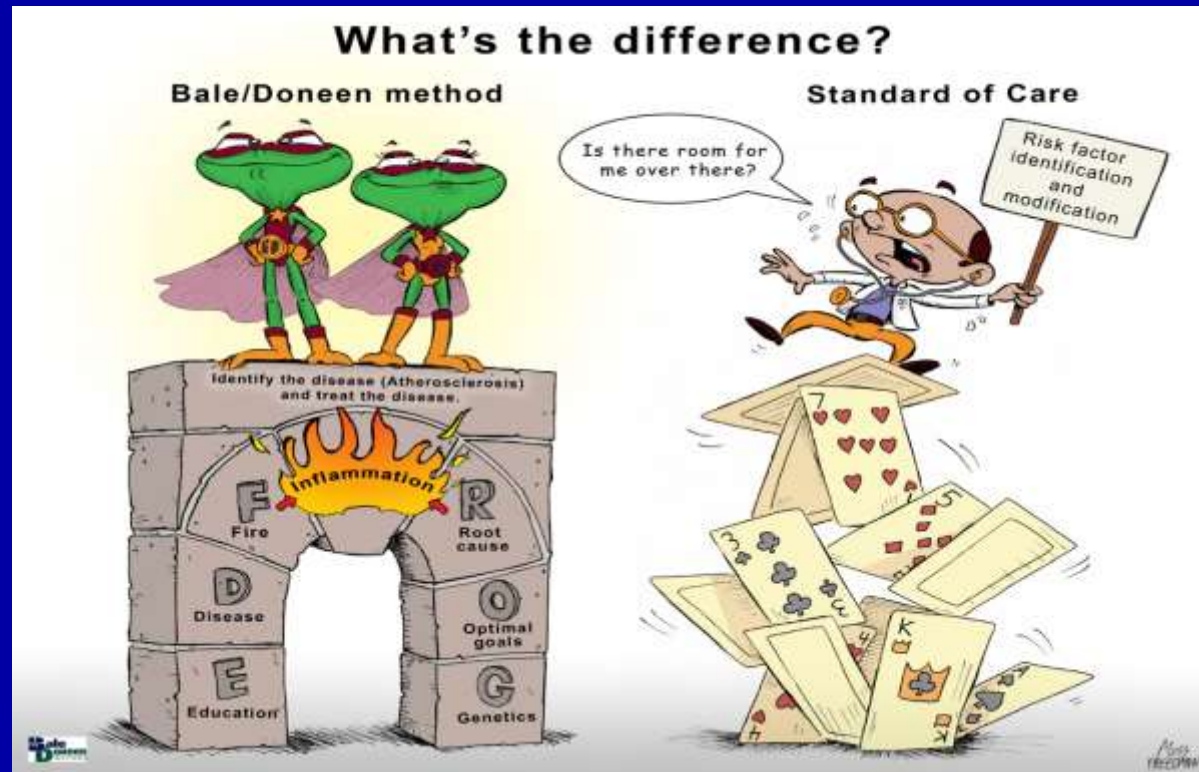


Chris - Inflammation

- Inflammation:
- Endothelial:
 - hsCRP: 6.1 mg/L
 - Microalb/creat: 17
 - Fibrinogen: 433
- Intima:
 - Lp-PLA-2: 358
 - MPO: 974



Education / Disease / Fire / Roots



Needless to say.....CHRIS is HIGH RISK for another event!

One Essential Element for Brain Health is Arterial Wellness



Immediate Treatment-

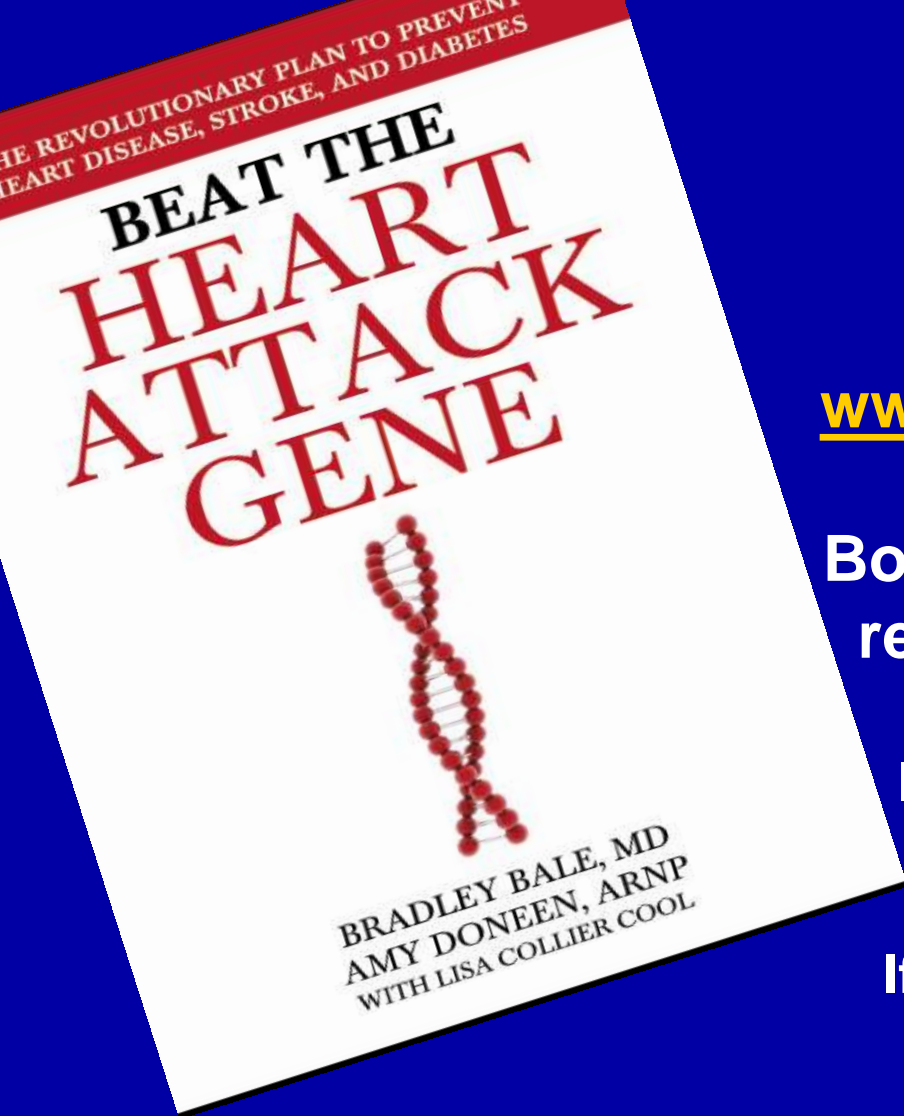
1. Obtain: Oral DNA, Sleep Study
2. Omega 3 at 2gm/day
3. Simcor 40/1000
4. Recheck inflammation/lipids in 1 month then start next treatment – likely Pio

Immediate Results after starting omega 3 and Simcor 40/1000

	<u>10.21.2013</u>	<u>11.30.2013</u>
hsCRP	6.1	2.5
Lp-PLA2	358	174
MACR	17	22
MPO	974	851
TC/HDL	3.6	1.8

Next step - I'm still nervous!

1. Has appointment next week (12/19/2013) to discuss these labs and will review pending tests – Sleep study remains pending.
2. Oral DNA bk today 12.11.2013 – Negative for high risk pathogens and positive for Fn. Getting periodontal eval.
3. Next step – I am going to add Pioglitazone 30mg/day for MPO and inflammation.
4. Chris will need close follow-up to gain confidence that he is improving
5. Education is KEY – sometimes fear can be stagnating.



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Larry King & Tommy Thompson
writing forwards!

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