



Heart to Heart: The Risk of Cardiovascular Complications in South Asians

SANTOSH MENON, MD, FACC

Director, South Asian Comprehensive Cardiovascular Center (SACCC)

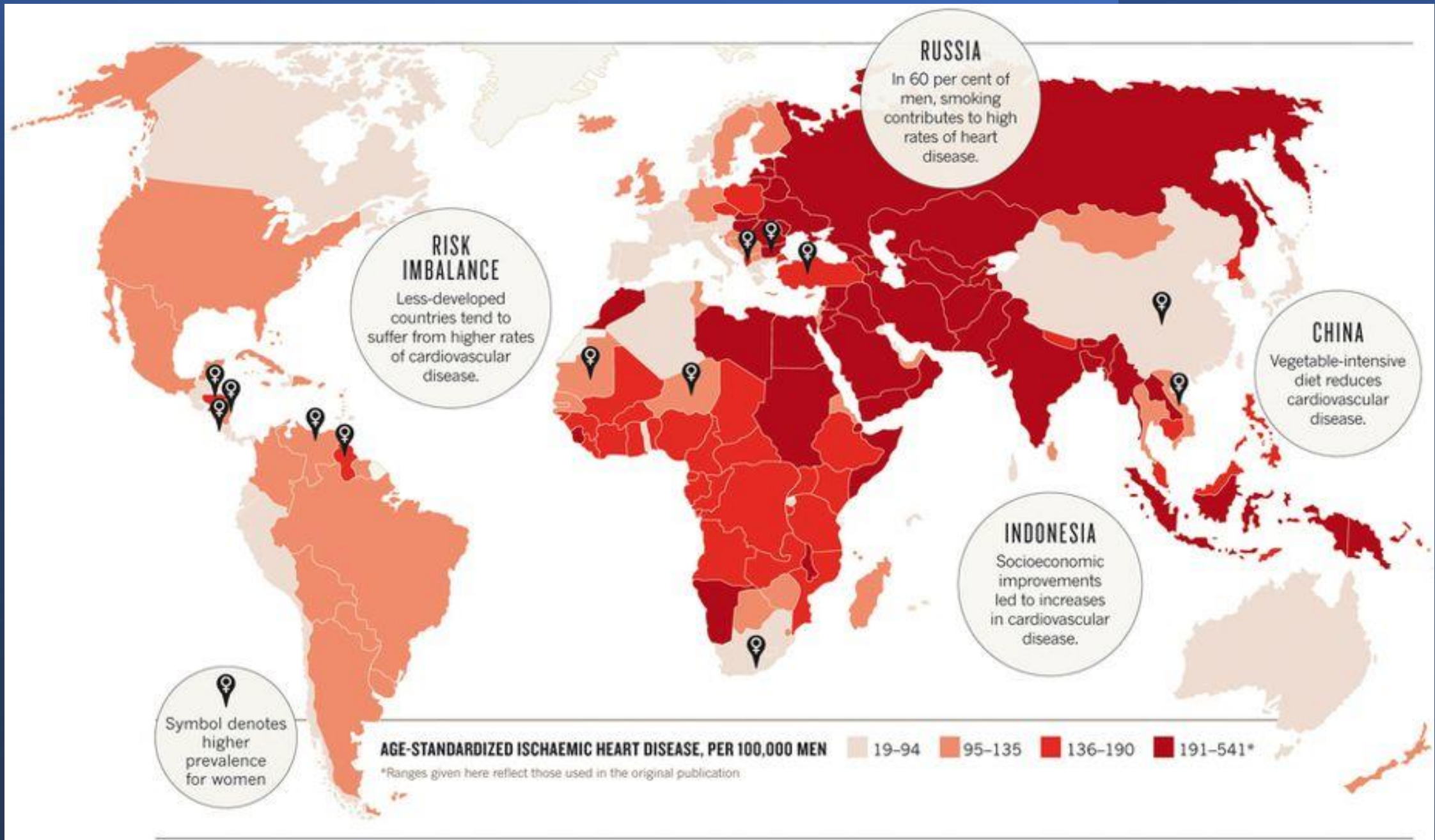
At The Christ Hospital

Cincinnati, Ohio



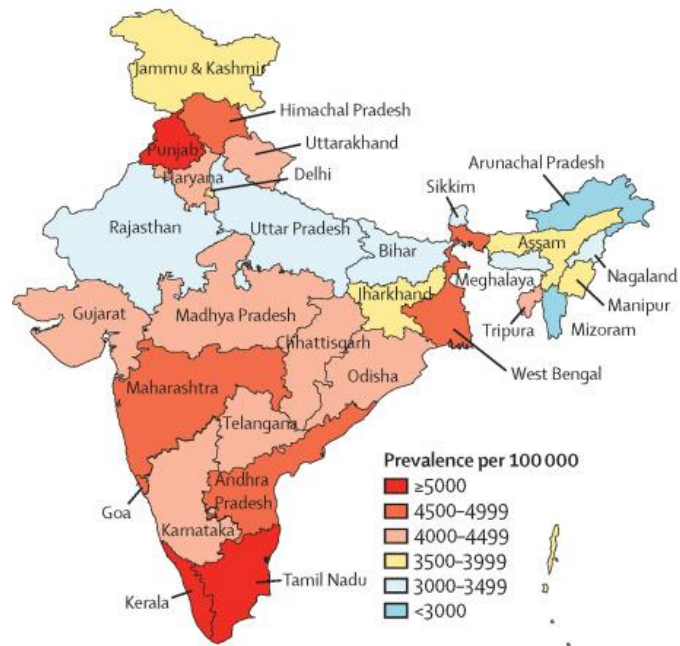
PATIENT STORY:

- 46-year-old South Asian male
- Starts to have nausea and shortness of breath on a Saturday-calls me, by now he's sweating and just doesn't feel good. He thinks it could be something he ate
- I told him to go to the local hospital (Columbus) and get checked out
- He was having a heart attack
- 2 Stent placed
- His **risk factors**: moderately obese, mild hypertension, no family history, does not smoke, exercises intermittently, stress at work, has diabetes – no meds – fasting glucose was 175
- His lipids (3 mos ago):
 - Total Cholesterol- 190
 - LDL- 108
 - HDL- 28
 - Triglycerides- 260

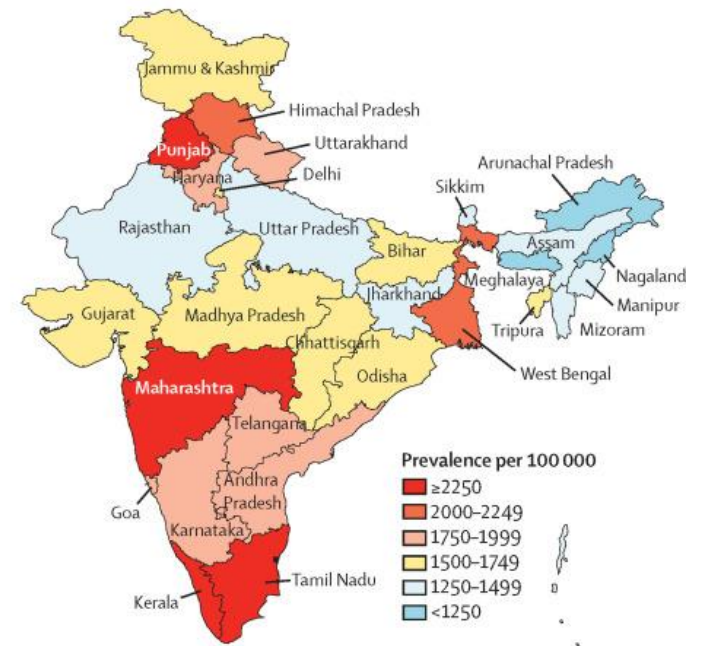


Prevalence by Region

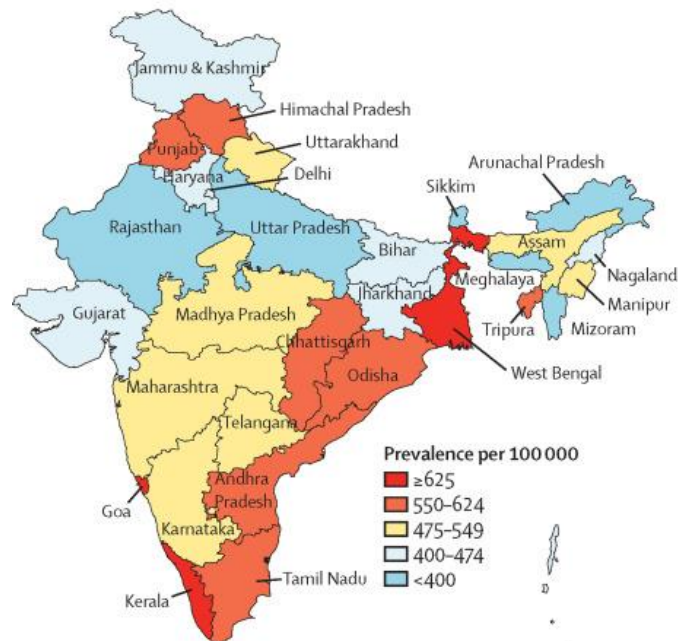
A Cardiovascular diseases



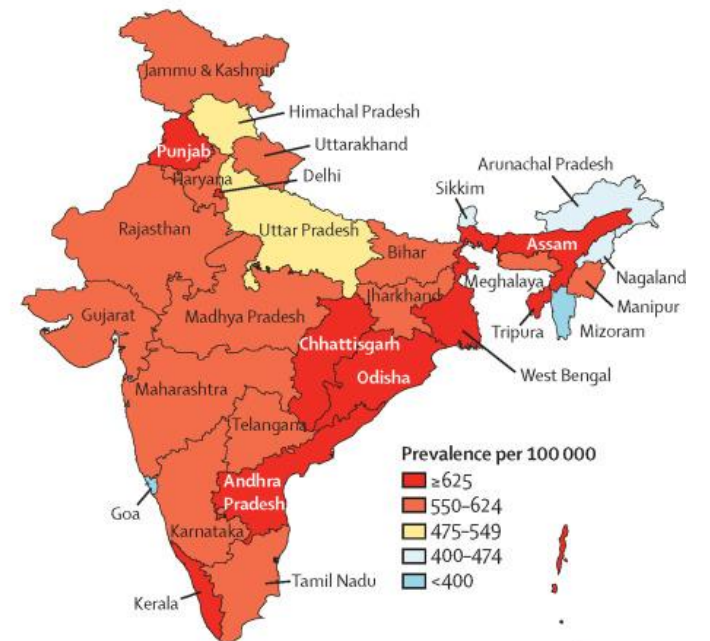
B Ischaemic heart disease



C Stroke



D Rheumatic heart disease



SOUTH ASIANS AND HEART ATTACKS: THE MAGNITUDE OF THE PROBLEM

- South Asians are one of the fastest growing ethnic groups in the US
- South Asians make up 25% of the world's population yet account for 60% of the world's cardiac patients
- Heart disease is the leading cause of death in India, Pakistan and Bangladesh and the rates continue to rise
- Risk of heart attacks is **4 times greater** than other U.S. ethnic groups
- Heart disease starts **10 years earlier** in South Asian immigrants
- Risk does not change by moving to US, Canada, etc.
 - DNA and cultural factors play a large role
- South Asia is in the middle of a CAD epidemic in seemingly otherwise healthy people

ASCVD IN THE SOUTH ASIAN COMMUNITY : A HISTORY

- 1st reports: Singapore 1959
- Followed by reports from Trinidad
- 1970s- multiple studies from Great Britain
- In North America- South Asians were initially identified with East Asians- risk was thought to be low
- Turn of the 21st Century, researchers started recognizing South Asians as a separate entity. Found morbidity and mortality to be much higher.

The New York Times

Feb. 12, 2019

LIVE

Why Do South Asians Have Such High Rates of Heart Disease?

“We all have someone in our first-degree circle that has either died suddenly or had premature cardiovascular disease,” said one researcher.

By Anahad O'Connor



PRINT EDITION A Troubling Link for South Asians | February 19, 2019, Page D4



Investigating heart disease in the South Asian community

MEDIATORS OF ATHEROSCLEROSIS IN SOUTH ASIANS LIVING IN AMERICA (MASALA) STUDY

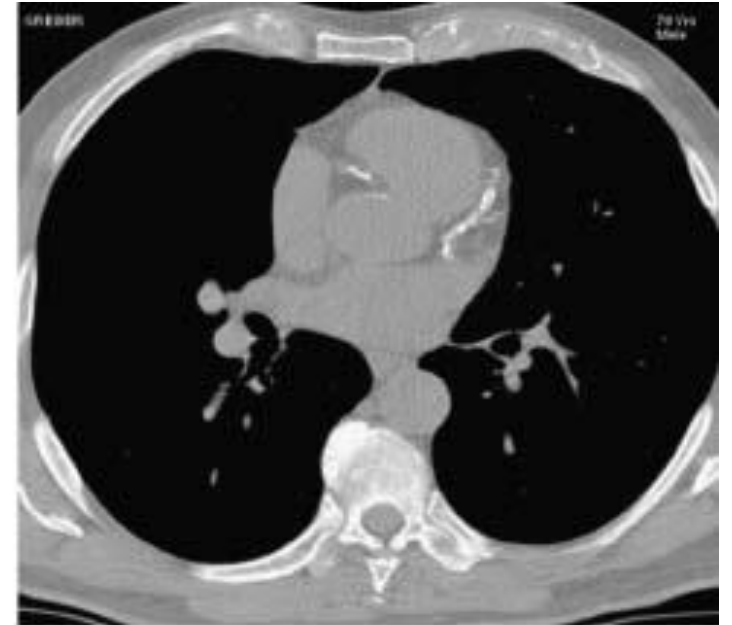
- By 2024, the MASALA cohort will include around 2300 participants in California, Illinois, and New York, whose health will be tracked over the next several decades
- Goal: to explain why SA have higher risk of CV complications at an earlier age
- What they've found to date:
 - SA are 4x the risk for CV events
 - Occurs 10 years earlier than white counterparts
 - Higher mortality
 - Causes: increased adiposity, increased Diabetes Mellitus, increased Insulin Resistance, body composition
 - Possible genetic component

MASALA STUDY: CONCLUSIONS

- Carotid Intimal thickness was an early marker
- Calcium Heart scoring was also an early marker

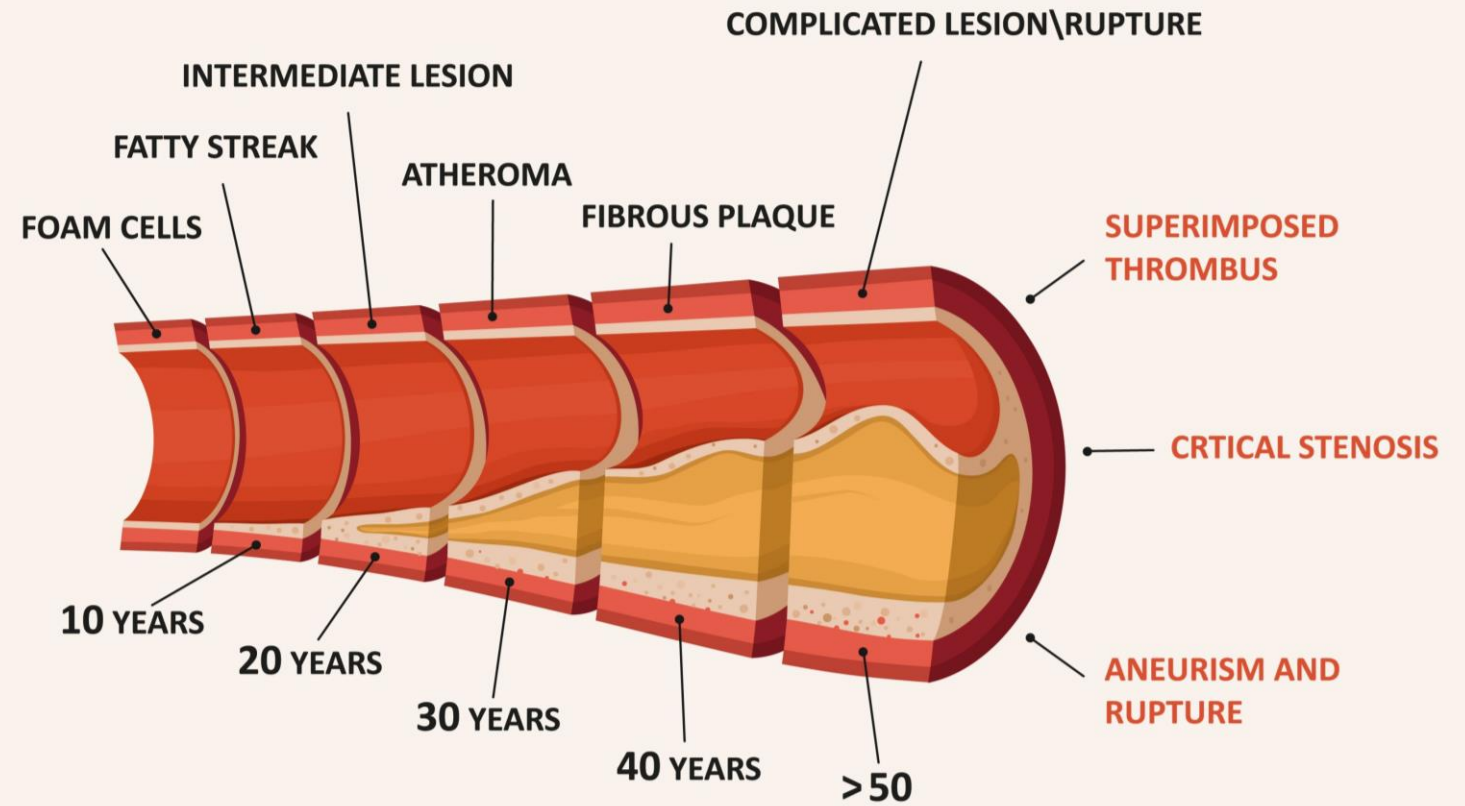


Normal LAD



Calcium in LAD, LCX
and RCA

ATHEROSCLEROSIS



WHY DOES THIS HAPPEN?

- Biology of atherosclerosis is complex; but no difference in South Asians
- Increased prevalence of known risk factors:
 - Insulin resistance / high insulin levels
 - **Metabolic Syndrome**
 - Type 2 Diabetes Mellitus- 120 million South Asians will have it by 2030! (23% in South Asians vs. 6% in Caucasians)
 - Low HDL
 - Elevated Lp(a) on a lipid panel, high triglycerides , high apo B/ apo A ratio
 - Obesity (especially abdominal adiposity), but our BMI is lower (due to distribution of adipose tissue), more important our waist to hip ratio is higher
 - Lack of physical exercise / higher stress
 - Higher incidence of high BP
 - Higher levels of inflammatory markers
 - Possibly genetic

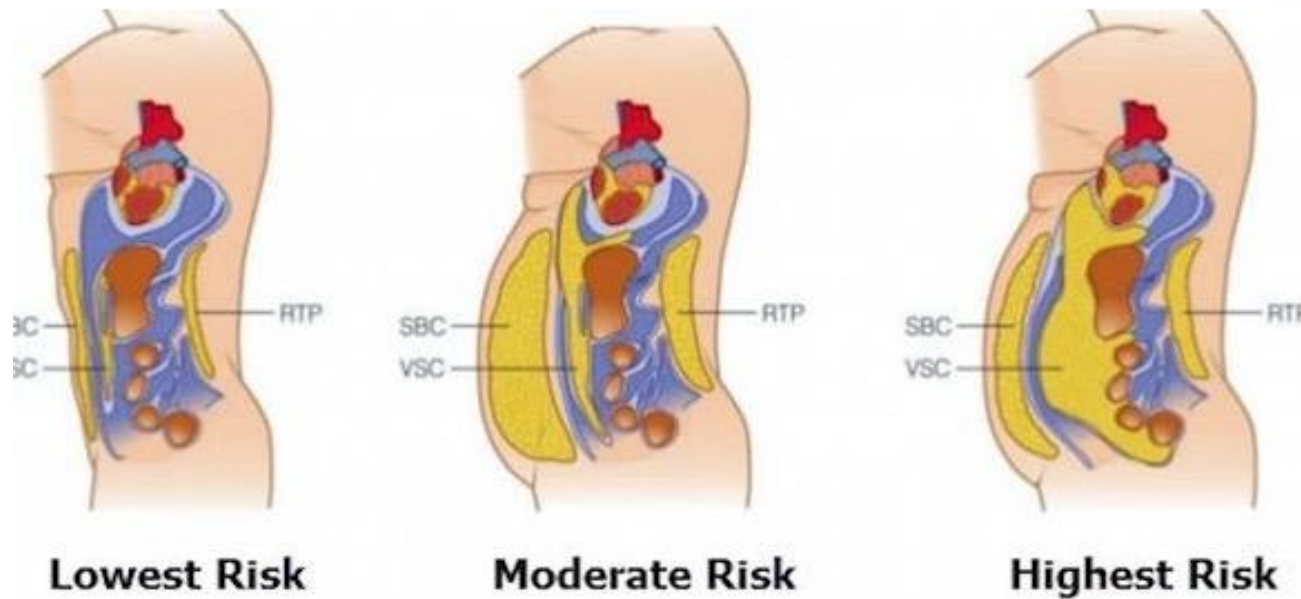


A PERFECT STORM:

- We have **all** the risk factors
- But:
 - Our cholesterol levels do not raise a red flag (LDLs tend to be ok, or not too high)
 - Our BMI is lower (do not meet obesity criteria)
 - “We’re not fat- how can we be diabetic???”
 - We don’t meet criteria for high risk based on risk calculators
 - Hypertension / Diabetes goes untreated
 - We think we’re protected because many of us are vegetarians
 - Cultural barriers to getting care
 - **Treatment is at times delayed!**

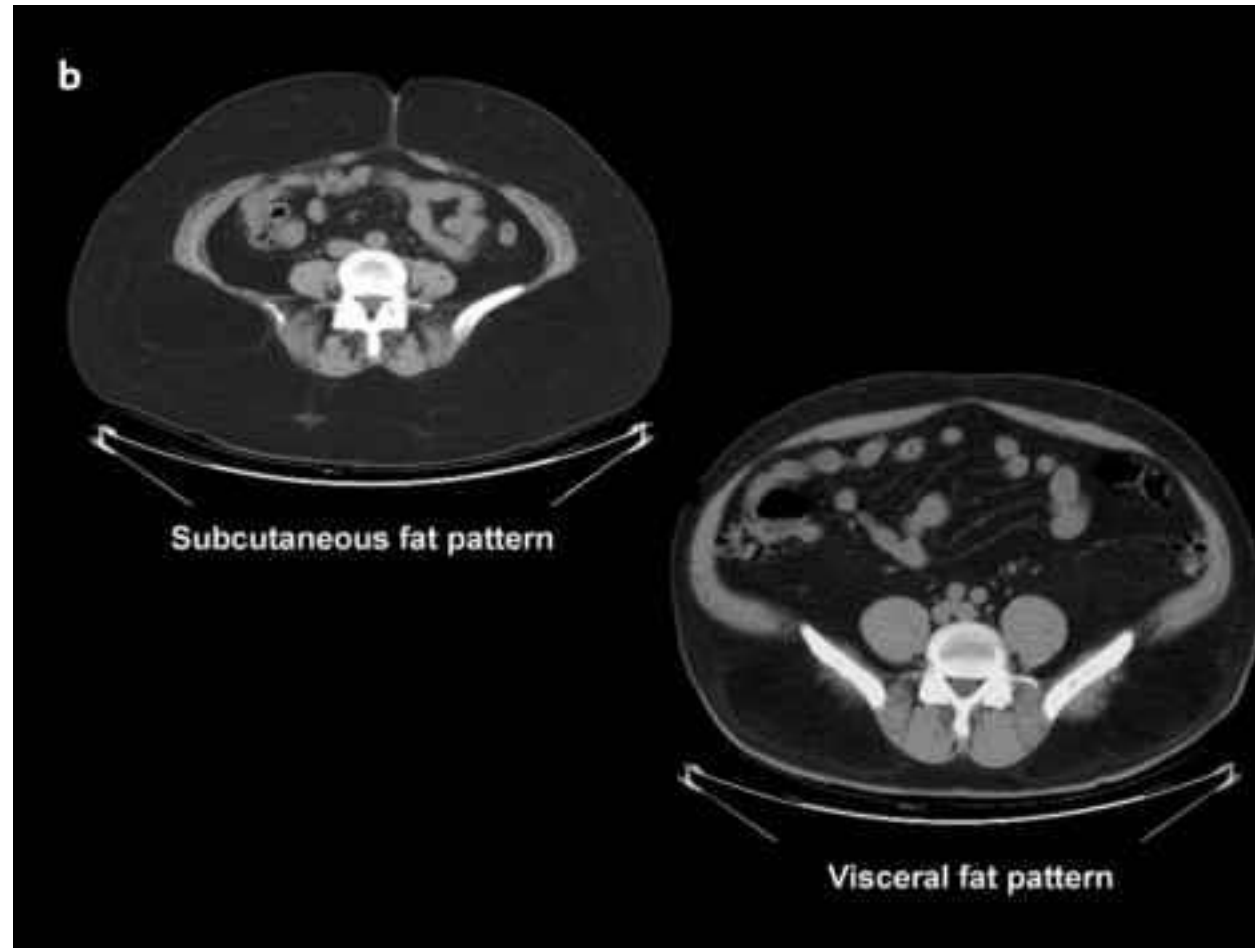
FAT DISTRIBUTION IN SOUTH ASIANS

Subcutaneous Fat (SBC) and Visceral Fat (VSC)



- Stemming from childhood – a recent study concluded that the relatively lower birth weight and rapid growth acceleration in early childhood of South Asian children increase the risk of their developing cardiometabolic disorders at a younger age than that of Caucasians

FAT DISTRIBUTION IN SOUTH ASIANS



BODY MASS INDEX (BMI): FOR SOUTH ASIANS

- A recent study found, despite the lower body mass index (BMI), body weight, and serum cholesterol, South Asians have greater evidence of other features of dyslipidemia including lipoprotein(a) and other CVD risk factors than Caucasians₁
- We develop insulin resistance at a LOWER BMI
- WHO and American Diabetes Association have recommended lowering BMI cutoffs for defining overweight status and obesity in South Asians to improve early identification of CV risk.
- **Hip to waist ratio is much more accurate**

DIET: A BIG PART OF THE PROBLEM

- **Typical south Asian diet:**
- High in Carbs
- Low in fiber
- High Saturated fats
- High sugar
- Being vegetarian doesn't protect you
- *But our diet is a bond to our culture/ homeland*





EXERCISE:

- Increase in sedentary lifestyles - Urbanization, economic growth, irregular timing of meals, and dietary westernization
- More success = More time spent sitting
- Raise awareness of the importance of walking, mobility, daily activity
- Cultural barriers to exercising – most notably with women

EXERCISE- A VERY GOOD THING!



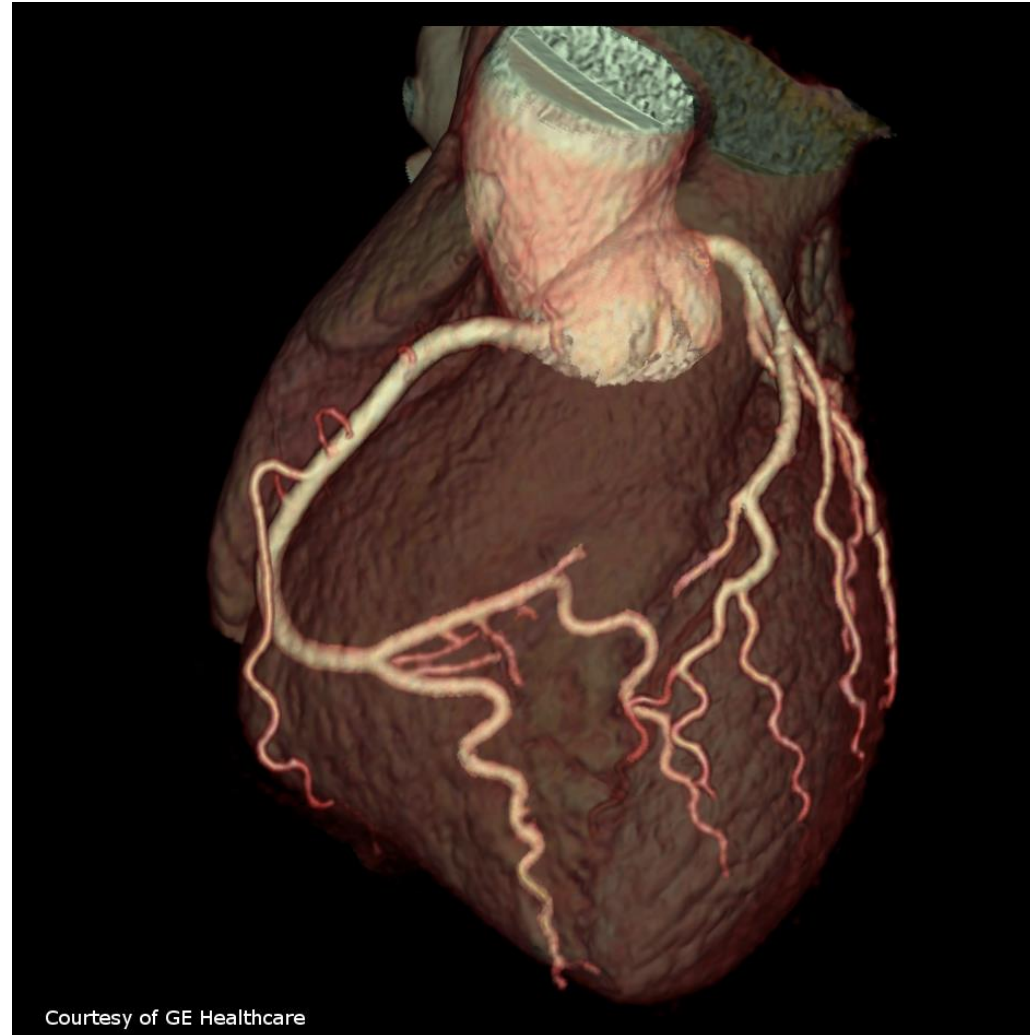
PSYCHOLOGICAL FACTORS:

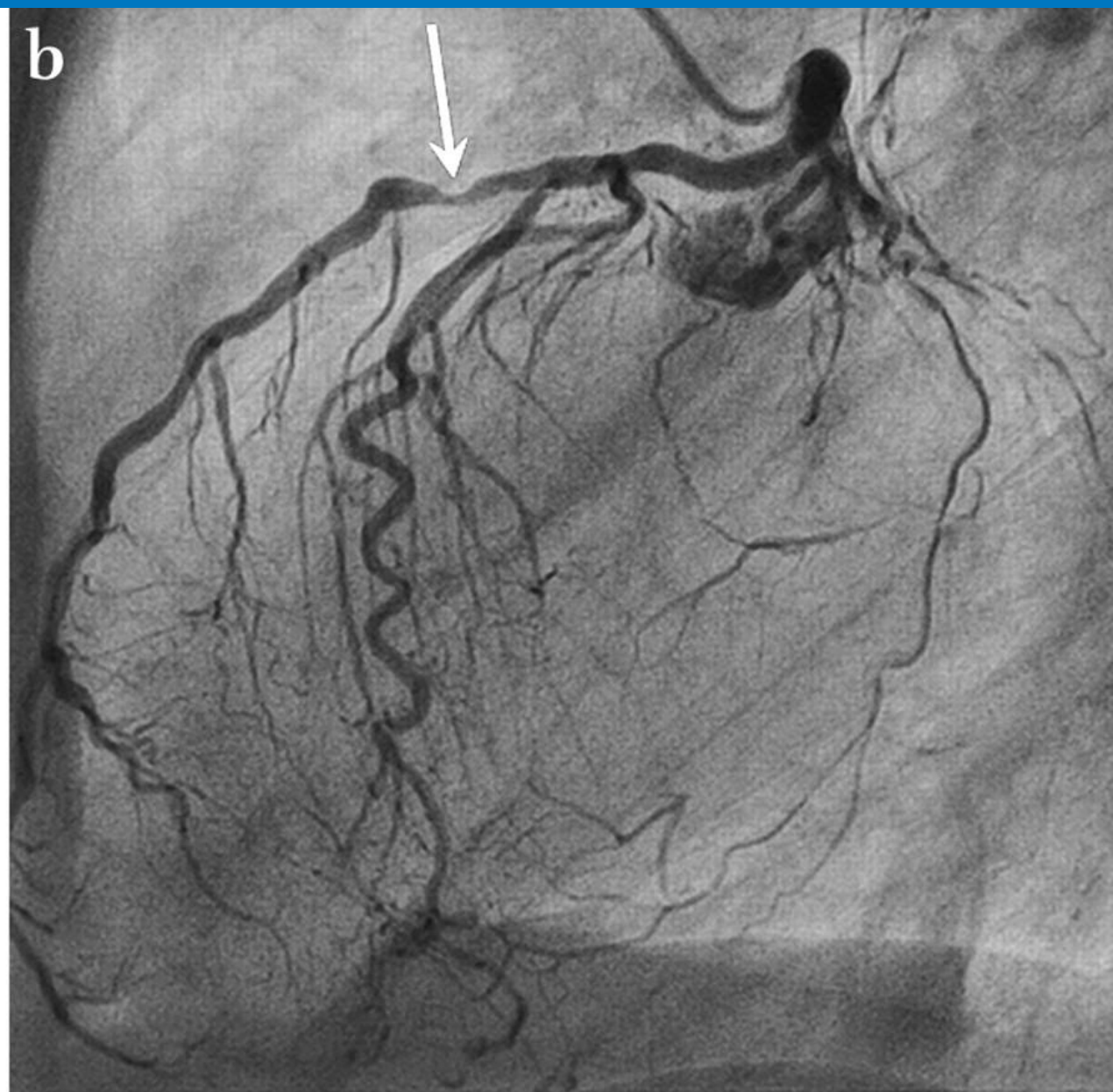
- Mental stress plays a big part (at work and at home)
- Depression (worse in women)
- Lack of social support
- Protective social factors (cultural isolation is bad)
- Access/ barriers to health care due to location, transportation, cultural, language barriers- thought to play a role

SOME BASIC TIPS:

- See your doctor
- Get your lipids checked and if you are at high risk, get lipid sub particles checked also (Apo A/B, CRP , Homocysteine, Lpa)
- Get non –invasive imaging done (Carotid thickness, Calcium score, ankle brachial index)
- Start exercising
- Quit smoking
- Lose weight / get BP under control
- Change your diet: see a dietician, reduce daily calories (1500/ day – women, 1800/day – men)
- Reduce stress
- Control alcohol intake
- HAS TO BE TAILORED TO YOU !

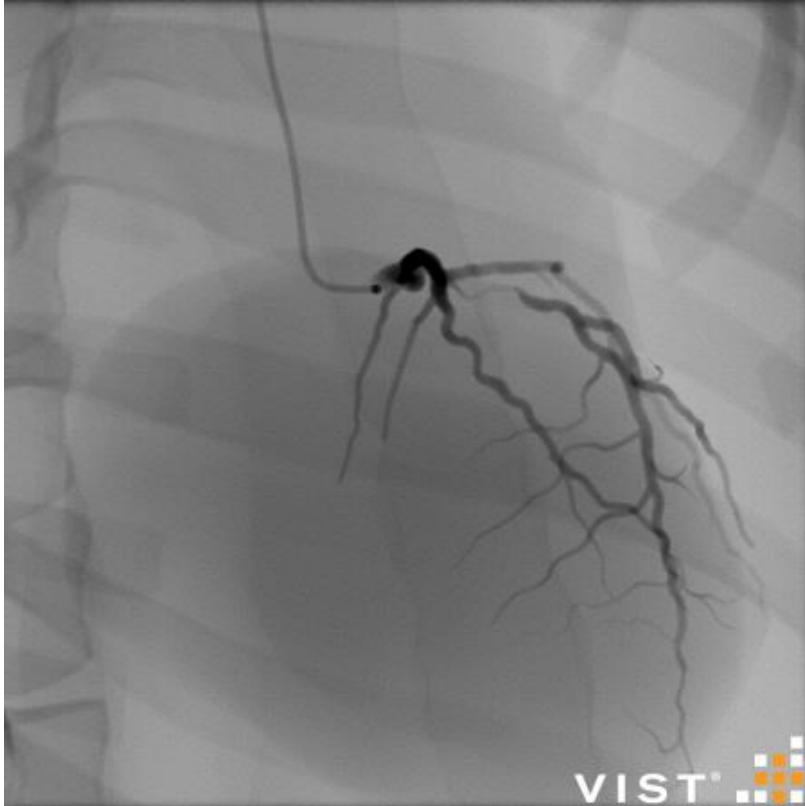
CORONARY CT SCAN



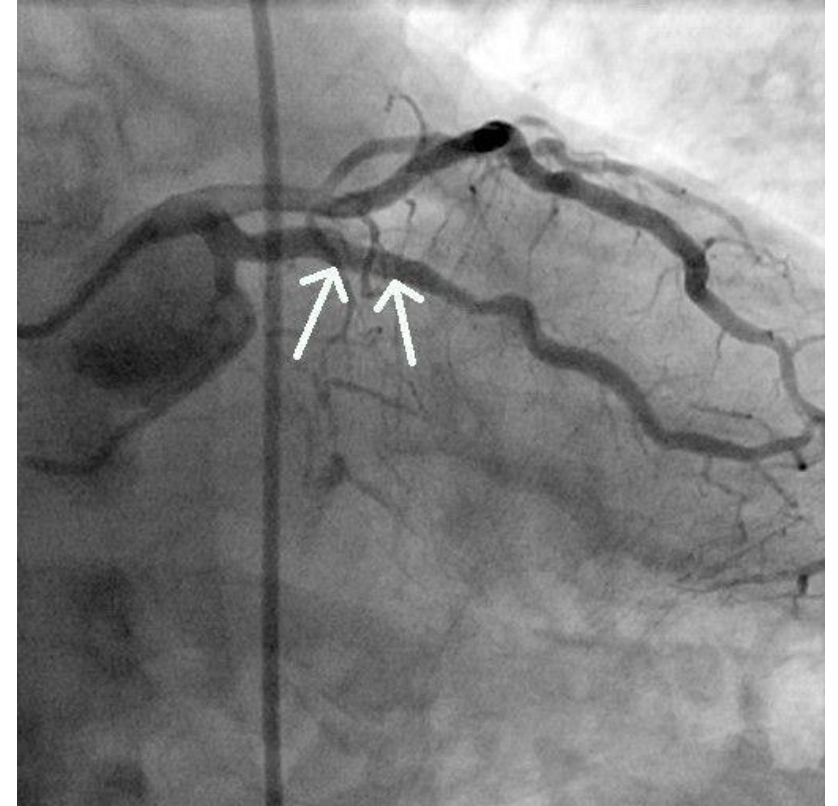


COMPARISON OF CORONARY ARTERY SIZE

Typical South Asian




Typical American



- Use statins- lower LDL as much as possible
-
- Statin Intolerance- consider adding Zetia , Co Q 10, Vit D (check levels)
- ?PCSK 9 inhibitors- no data
- ? Vascepa – no data
- ? Diabetes agents/ Metformin
- Exercise, Modify Diet (limit calories ,reduce carbs,) Reduce Stress

Developing A Culturally Focused Heart Center

- Initiated early 2019
- **Unique to the region**
- Shared Decision Making With Patient and Family Members
- Promote a Healthy Lifestyle
- Non-Pharmacological Therapies
- Determine candidates for Tailored Pharmacotherapy
- Adopt a Personalized Approach
- Monitor Response to Treatment and Lifestyle
- Communicate with Primary Physicians




The Christ Hospital Health Network
**SOUTH ASIAN COMPREHENSIVE
CARDIOVASCULAR CLINIC (SACCC)**

Goals of the clinic:
To provide preventative cardiac care in a culturally sensitive setting with an emphasis on education, diet, exercise, and more!

Who is the clinic for?
Those of South Asian Ancestry: India, Pakistan, Bangladesh, Bhutan, Burma, Sri Lanka, Myanmar, Nepal, Maldives

Those with the following risk factors or concerns for heart disease:

- Family History of Heart disease including stroke, heart attack, angina, peripheral vascular disease
- Diabetics of South Asian Ancestry
- Those with abnormal cholesterol, hypertension, glucose, smokers, excessive alcohol intake
- Those that have had a heart attack, stenting, bypass surgery, valve surgery, pacemakers, stroke, difficulty managing cholesterol levels, other vascular surgeries
- 2nd opinion for any of the above issues

 **The Christ Hospital™**
Heart & Vascular



NOTEWORTHY COMMUNITY OUTREACH AND EDUCATION EXPERIENCES

- Islamic Center of Greater Cincinnati - health fair 2019
- Hindu Temple – Free Screening Clinic 2019
- Guru Nanak Society of Greater Cincinnati – Free Screening Clinic 2021
- Free Screening Clinic in partnership with Heartfelt Tidbits (not pictured) – 2022
- Education Seminars to Graduate students, Residents, and Fellows
- Local News Interviews



FUTURE DIRECTIONS:

- Outcome studies (Large and Small)
- AHA has changed their lipid guidelines to include South Asians
- American Diabetic Association has done the same
- Clinical Trials specifically for South Asians
- Specialized centers
- More awareness, locally, nationally
- Culturally specific guidelines, risk calculators, diets, exercise
- Looking more into genetics
- Public Policy- Representative Pramila Jaypal – Bipartisan Bill for South Asian Heart Research

**Heart of Health Policy | New Bill Would
Raise South Asian Heart Health Awareness**

Jun 21, 2019, Cardiology Magazine



DESPITE ALL
THIS, THERE ARE
STILL SOME
AMONG US WHO
ARE IMMORTAL!



Health is wealth, we never know its value
until we lose it.

स्वास्थ्य- ही धन है. जब हम इसे खो देते हैं, तभी
इसका असली मूल्य मालूम पड़ता है.



A Final Thought.....

“To leave the world a bit better, whether by a healthy child, a garden patch, or a redeemed social condition; to know that even one life has breathed easier because you have lived - that is to have succeeded”

— Ralph Waldo Emerson

Thank you!

