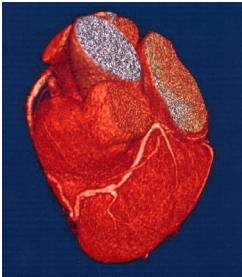


CARDIOLOGY

For WOMEN

GYNECARDIOLOGY:
a new cardiology subspecialty



γυνή = woman
καρδία = heart
λόγος = science of



- **What should be your expectation with Emergency Room visit?**
- **What are your risks of heart disease?**
- **What tests are there and what is the upside and downside?**
- **What is the treatment for various heart diseases in Women, some of which may be highly specific for women?**
- **Future Directions: Specialized Care!**

GYNECARDIOLOGY

Heart Attack! => ER visit

- What happens when a man comes to the Emergency Room? "Rapid Triage & Treatment"
- What happens when a woman comes to the Emergency Room? "Flying under the Radar"
- How the Emergency Room Doctor tries to elicit a man's symptoms from a woman: "Atypical Chest Pain"
- How one Hospital Emergency Room changed the approach: "No Heart Attack Left Behind!"

Triage Nurse: Shortness of Breath, Nausea & Vomiting, Fainting, Chest Pain, Arm Pain, Back Pain, Shoulder Pain, Jaw Pain, Low Blood Pressure, High Blood Pressure, Fast Heart Rate, Slow Heart Rate, Sweating

Cardiac Profile: ONE Computer Keystroke: 2 hs-troponin I
And EKGs 90 min apart +BNP +Echocardiogram

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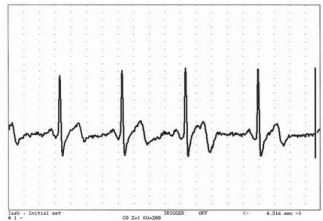
Tests for Risks, Risks of Tests Tests for Blockages/Dysfunction

Four Smart Risk Tests for Women

1. Reynolds Risk Score not Framingham : age, Smoking?, Systolic blood pressure, Total Cholesterol, HDL (good), hsCRP, Father or Mother have a heart attack before 60?
2. hsCRP
3. PLAC:;test for Lp-PLA2
4. Calcium scoring versus iDose CTA S+S when appropriate

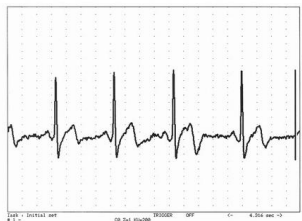
TESTs For BLOCKAGES

Stressors	Images	Radiation msievs
Exercise	Ekg only	0
Adenosine	Echo /Contrast	0
Dobutamine	Spect sestamibi	18-22
Persantine	Pet Rubidium	5
Ragadenosone	MRIGadolinium	0
	CT/ contrast/perfusion	25



Other Tests

Coronary CTA, regular	18
Coronary CTA S&S, iDose	1-3
Cardiac Cath, invasive	5
Path Without Cath Program	
Open Access Cardiac Surgery Program	



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Treatment

Type of Heart Disease	Cause	Treatment
Broken Heart Syndrome , AKA: Stress Cardiomyopathy, Takatsubo, Transient Apical Ballooning	Epinephrine and LV Epinephrine receptor distribution.	Supportive Care, Complete Recovery Afterwards, Rare Recurrence
Peripartum Cardiomyopathy	Prolactin secretion	Inhibition with Bromocriptine plus conventional therapy for CHF
Polycystic Ovary Disease	Insulin resistance (Hyperinsulinemia)	Drugs used for adult onset diabetes
Valvular Heart Disease	degenerative changes; Mitral Valve Prolapse	Valve repair or Replacement
Ischemic Heart Disease without coronary artery disease	endothelial dysfunction ,small vessel disease	Diet, exercise, medications
Coronary Artery Disease	cholesterol, hypertension diabetes, smoking, sedentary life style, loss of estrogens	Diet, exercise, medications, angioplasty & stents, bypass surgery
Congestive Heart Failure	hypertension, viral, hereditary, coronary artery disease, valvular heart disease, alcohol, prolonged fast heart rate,AF, arrhythmia, gunk	Diet, exercise, medications, angioplasty + stents, bypass surgery, Biventricular pacer, automatic defibrillator .LVAD, Transplant
Adult Congenital Heart Disease	Atrial Septal Defect	Device Closure
Adult Cardiac Tumors	Myxomas	Surgical Removal
Collagen Vascular Diseases	SLE, RA	Steroids

GYNECARDIOLOGY

Vive la différence!

How women with heart disease are different from men with heart disease

- Women are more interested in their health
I never hear a woman say "My husband made me come in to see the doctor."

Problem	Statement	Solution
Most Drs. are men and women remain a mystery to us	Symptoms: Women present heart disease with different symptoms than men	50% of med school classes are women and we need women trained as imaging cardiologists and sensitive men to know what to look for in females
Failure to Recognize the age variation of heart disease in women	Onset of coronary artery disease ~ 10 years later than men	Understanding the bell shaped curve of age distribution of disease onset
False positive SPECT scans 50% of cardiac Caths are negative, conventional risk score does NOT apply	Diagnostic: 1) Radiosensitive Breast tissue 2) Greater % and distribution of fat and 3) Smaller target image	Test with less RADIATION More sensitive and specific tests PET/CT, CTA, step & shoot, MRI, Echo
Failure to recognize	Women specific causes, many of which are predominantly disease of women's hearts	Sharper differential diagnosis
Find it and fix it mentality Tier 2 & 3 general cardiac surgeons	Treatment: - Smaller STENTs - Difficult Bypasses	Offer many options Tier 1 – single modality cardiac surgeons

Proposal
GYNECARDIOLOGY:
A new cardiology subspecialty
and
Centers of Excellence for
Women with Heart Disease

- Doctors and nurses with a special interest in women with heart disease
- Acceptance of diverse symptomology
- Application of ER screening to better detect women with heart attacks
- Training physicians with expertise in low radiation high specificity, multimodality cardiac imaging PET/CT, CTA, Step & Shoot, MRI, Echo
- Recognition of differential diagnosis
- Offering treatment options that are more specific to women
- AHA / ACC guideline directed care
- Develop research projects for women with heart disease: Continuation of the WISE study, phase 2.
- Training the medical community to recognize what's new in women with heart disease
- Develop relationships with tier 1 single modality cardiac surgeons
- "Understanding that when you have a hammer, everything looks like a nail" To avoid that trap , recognizing that there are tack hammers, ball peen hammers, sledge hammers, and rubber mallets.

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My Patients