

Women's Heart Health: Clearing up the Ms. Understanding

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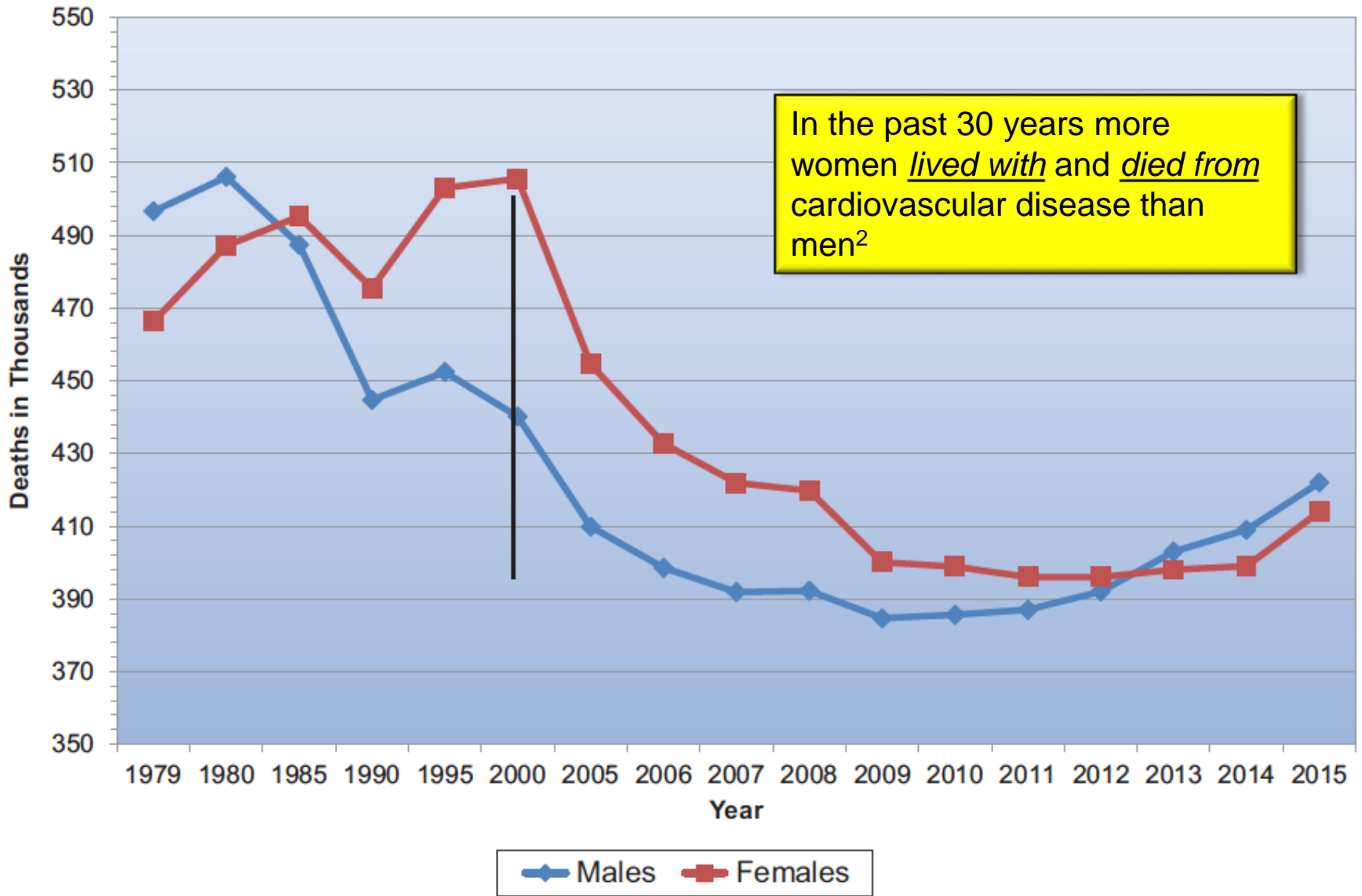
Faculty/Presenter Disclosure

- Faculty: **Dr. Robin Ducas**
- Relationships with commercial interests:
 - **Grants/Research Support:** Not Applicable
 - **Speakers Bureau/Honoraria:** Not Applicable
 - **Consulting Fees:** Not Applicable
 - **Other:** Not Applicable

Outline

1. Health impact of heart disease in women
2. How coronary disease is different in women
3. Review two main types of myocardial infarction (MI)
4. Review MI mimic: takatsubo cardiomyopathy

Survival in Cardiovascular disease¹



1) *Circulation*. 2018;137:e67–e492.

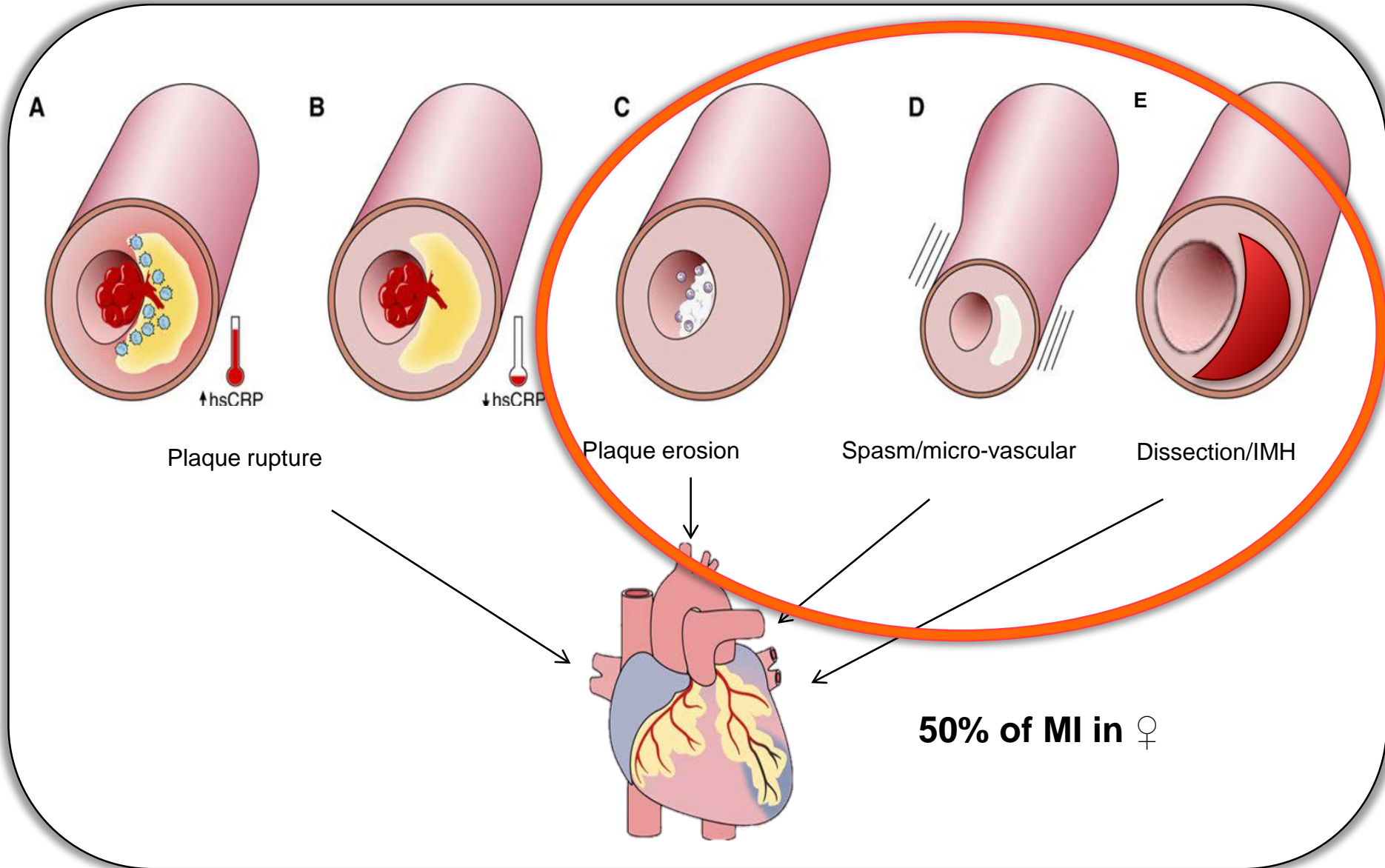
2) *Circulation*. 2015;131:e29–e322.

Heart disease and Women



- Leading cause of early death in women
- Diagnosis is often missed or delayed
- Women more likely to die during MI vs. men
- After MI women more likely to have heart failure, stroke or die vs. men

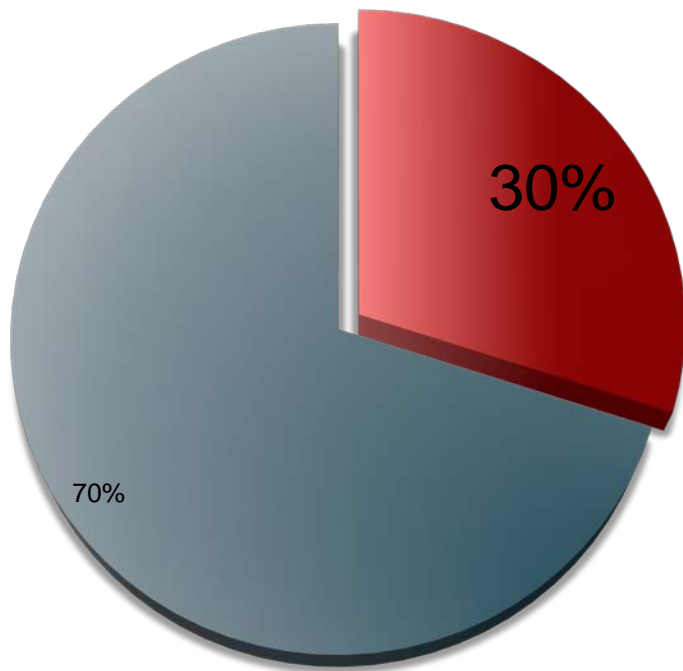
Causes of Myocardial Infarction in Women



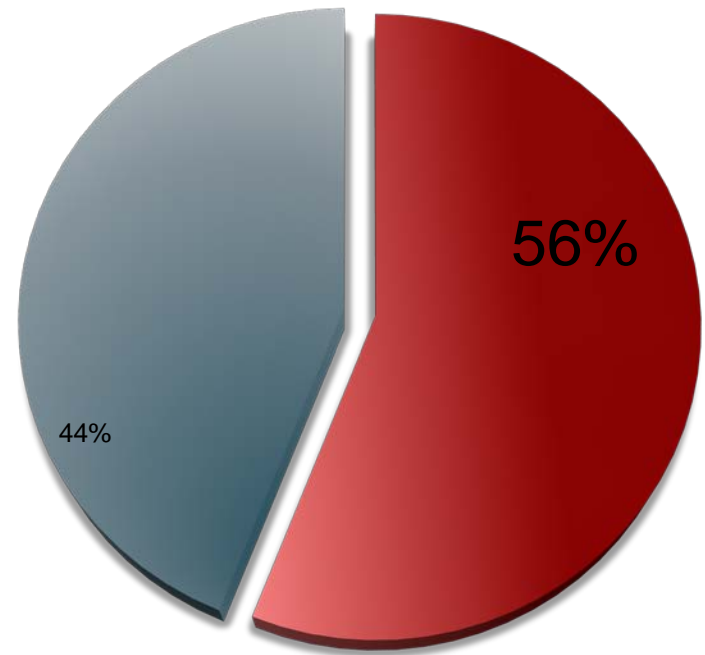
Understanding risk

Perception / awareness among Women

Heart disease is the leading cause of death

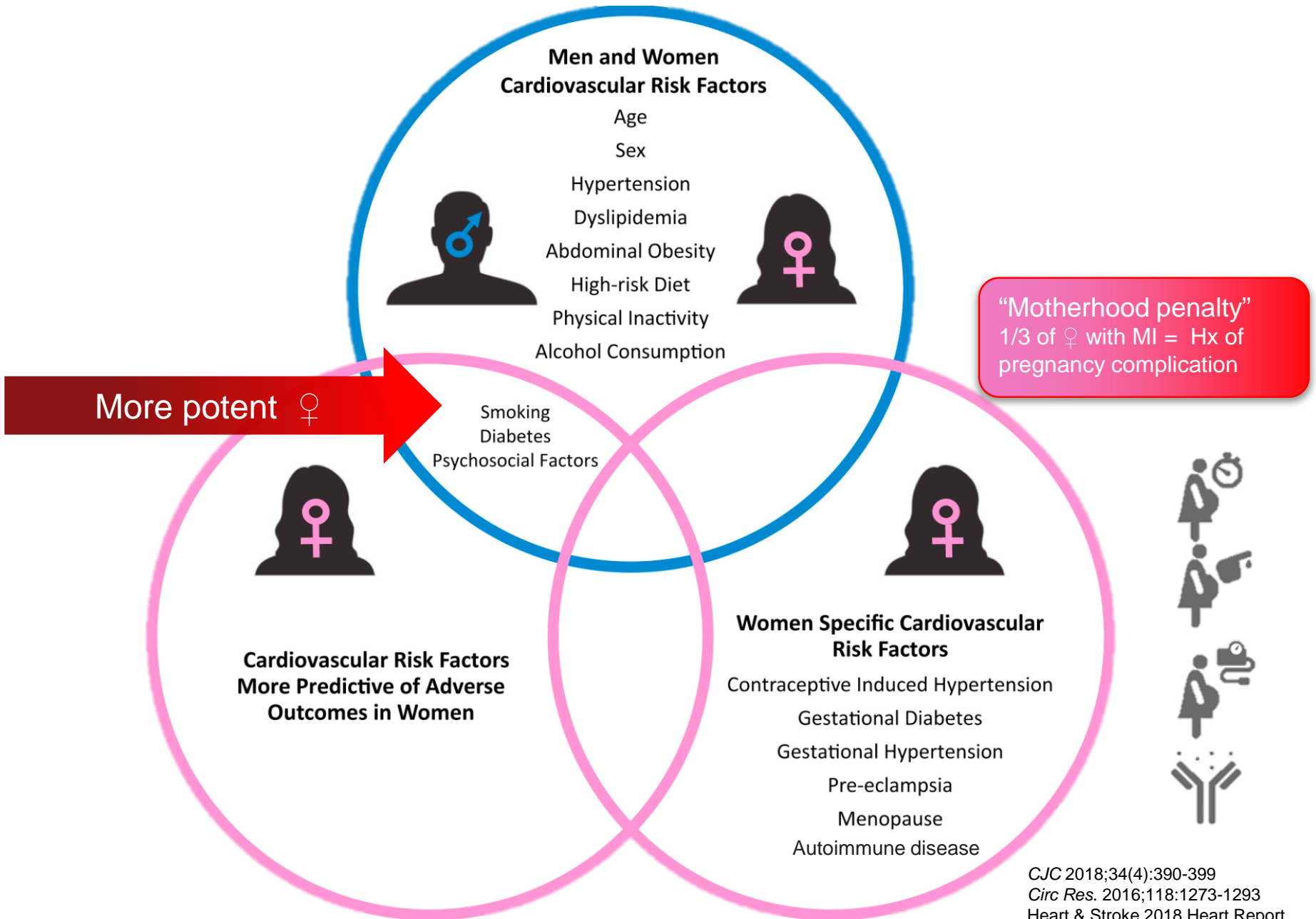


1997



2012

Risk Factors for Myocardial Infarction



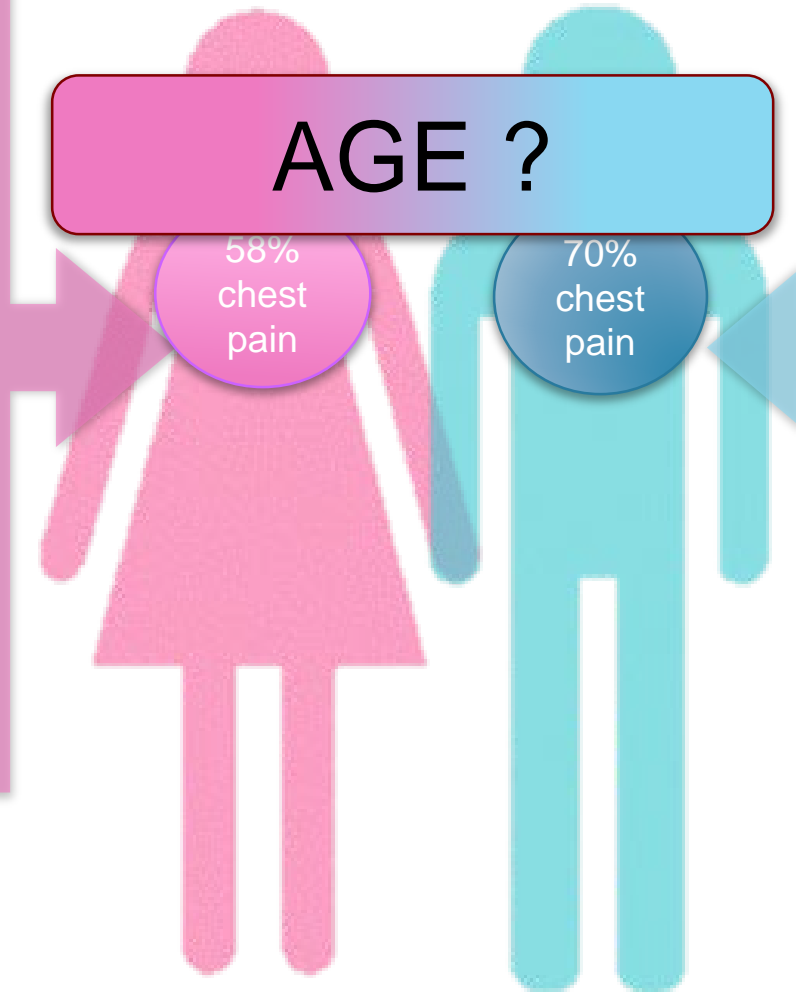
Clinical Presentation of MI in Women

Atherosclerotic coronary disease: Myocardial infarction



Myocardial Infarction Symptoms

- Pain back/arm/jaw
- Fatigue
- Dyspnea
- Indigestion/nausea
- Palpitations
- Weakness
- Sense of dread
- ***Less likely chest pain***
- *Multiple symptoms*



- Central chest pain
- Pain in upper arm
- Dyspnea
- Diaphoresis

Clinical Presentation of MI in Women

- Prodromal symptoms missed in 78%
- Present to medical care later
 - >75% present after 2 hours of symptoms
- Delayed identification of STEMI by EMS
 - 20 minutes longer to get to hospital than in men
 - Lower priority ambulance transfer

Under-diagnosed

Demographics of Women with MI

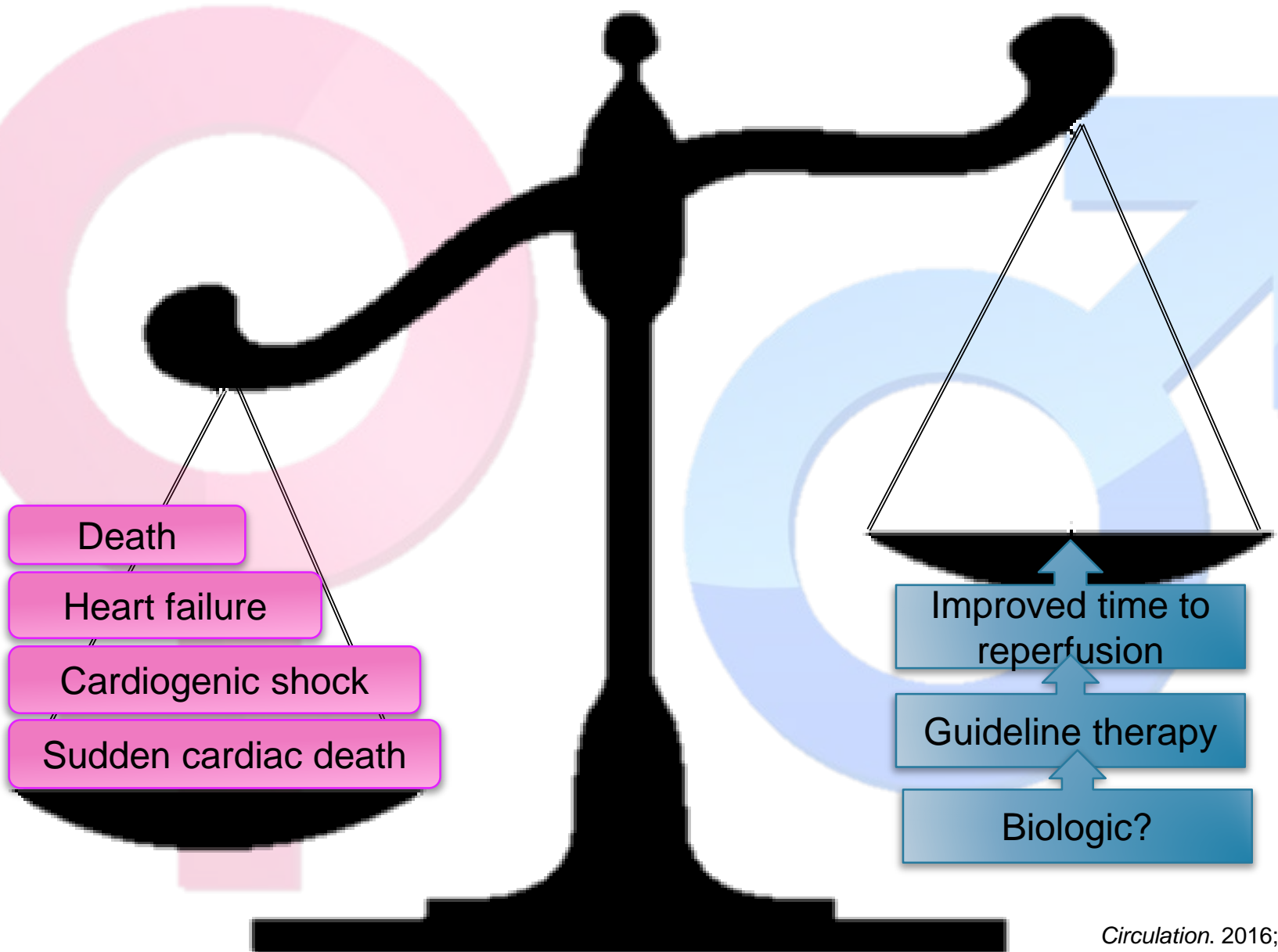
- Older age (72 y ♀ vs. 65 y ♂)
- Under recognized in younger women <55 y
- Higher prevalence of comorbidities
- NSTEMI > STEMI
- Unusual cause of MI

Myocardial Infarction in Women

- Women less likely to receive guideline therapy
- Women less likely to undergo angiography
- Women less likely to receive timely reperfusion



Complications in Myocardial Infarction



Survival and Outcome Benefit

Therapy	Women
Aspirin	✓
Antiplatelet	✓
Beta blocker	✓
ACEI/ARB*	✓
Statin*	✓

Similar benefits in improved survival.

Consistently undertreated compared to men

* *Contraindicated in pregnancy*

Under-treated

*Circulation. 2016;133:916-947
BMJ. 1994;308:81-106.
Circ Cardiovasc Qual Outcomes. 2011;4:328-336.
Circ Cardiovasc Qual Outcomes. 2009;2:633-41*

Why are women undertreated?

- Underestimation of risk by health care team
- Multiple comorbidities
- Risk of bleeding
- Lower adherence rates
- Concerns for teratogenicity

Myocardial Infarction In Young Women

<55 years

- Improvement in mortality over the past decade **not** seen in younger women
 - Worse risk factor profile
 - ?biologic
 - Gender/social stressors



Myocardial Infarction In Young Women

- 90% present with chest pain
- More common non-chest pain symptoms, ≥ 3
- <50% of women associate symptoms with MI
 - Attribute to stress
- Present to hospital > 1 hour later than men
- Care providers did not attribute symptoms MI in >50% of women

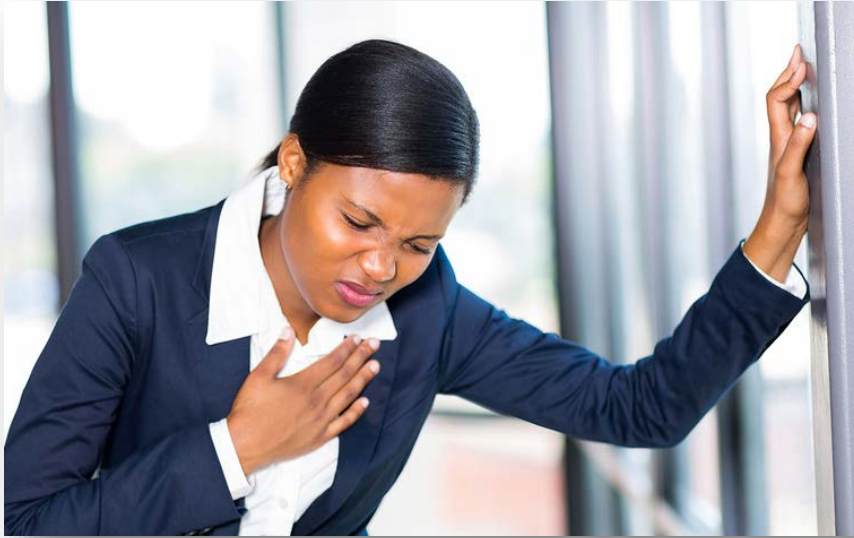
Increased adverse events in Women

- Delayed presentation
- Delayed diagnosis
- Reduced reperfusion
- Less guideline therapy



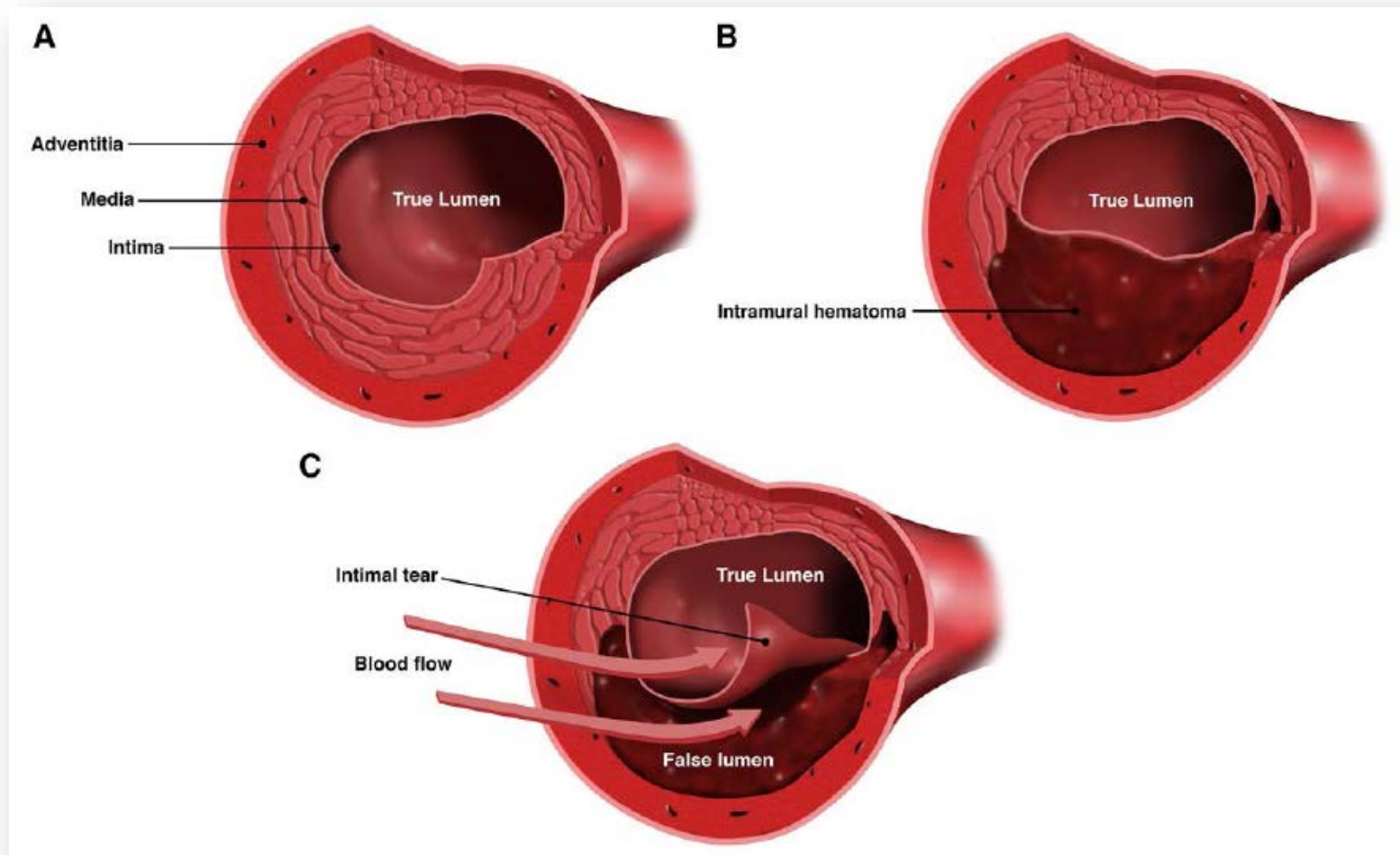
Heart attacks are more
deadly for women.

Spontaneous Coronary Artery Dissection



Not all heart attacks are created equal

- Spontaneous coronary artery dissection (SCAD)

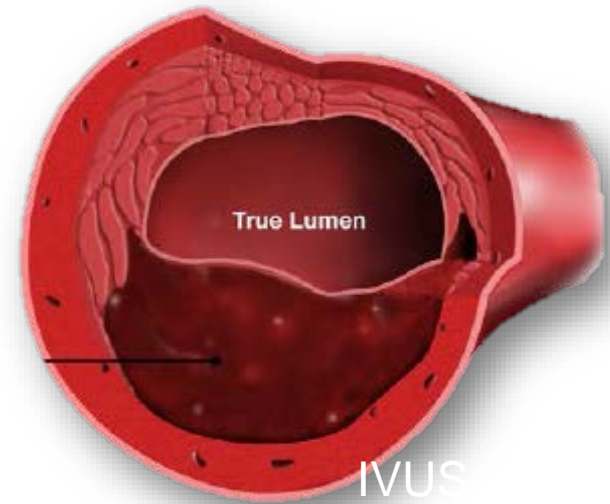
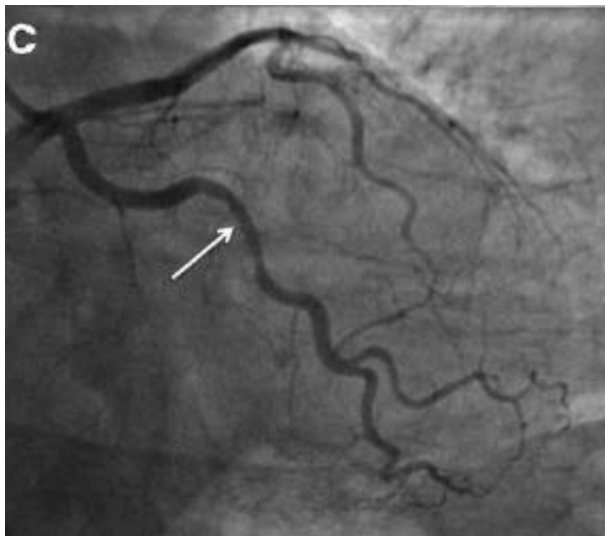
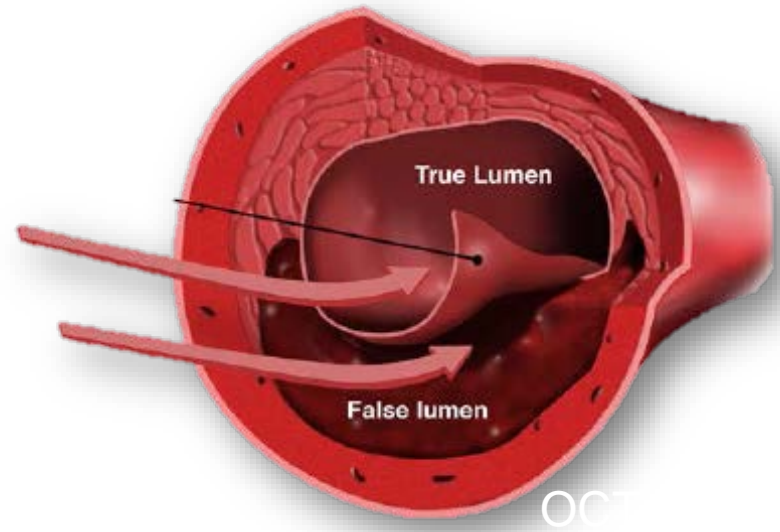
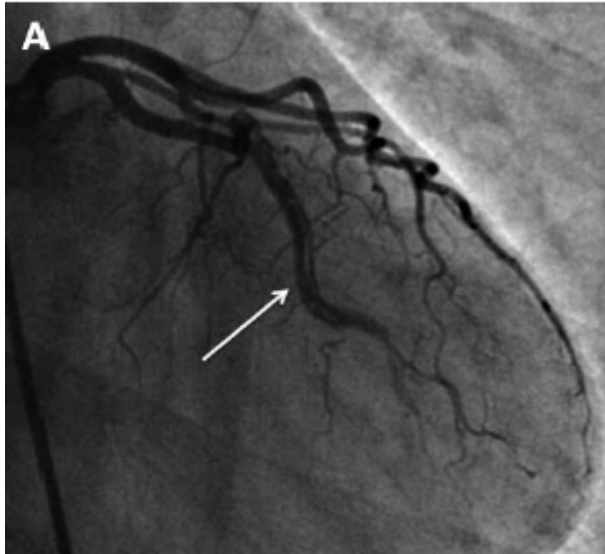


SCAD Presentation and Population

- Predominantly in women = >80%♀
 - Average age 40-50
 - >1/3 MI in young women
- Low prevalence of “traditional” risk factors
- ***Missed diagnosis → low suspicion of heart attack in Women***

Diagnosis of SCAD

- Angiography, intracoronary imaging



SCAD now what?

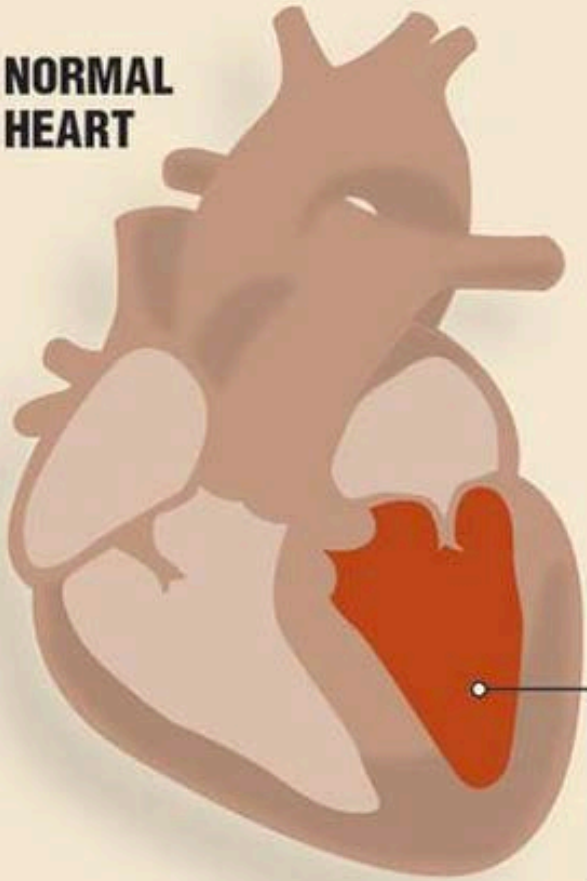
- Recurrence 17% in 3 years
- Poorer prognosis if during pregnancy
- Exercise after SCAD
- Birth control
- Pregnancy

Broken Heart: Takotsubo



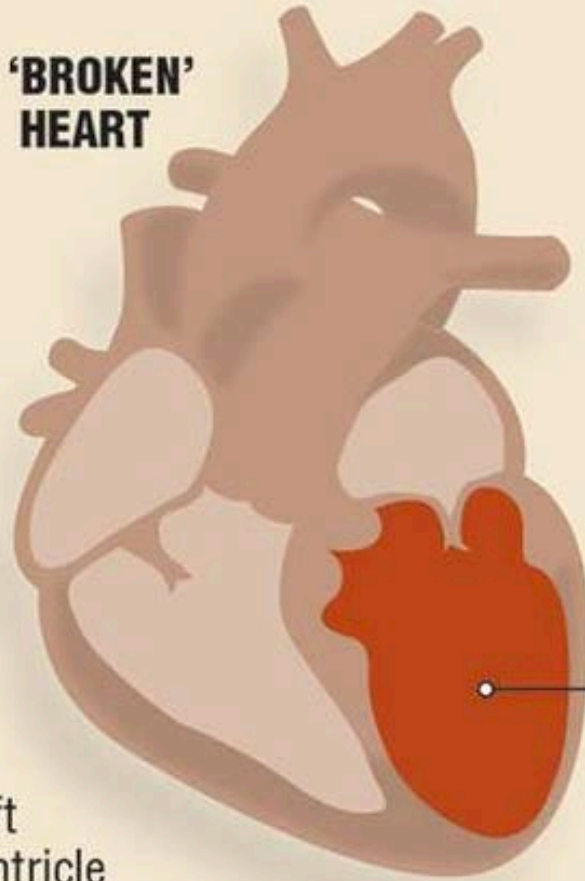
Broken Heart: Takotsubo

**NORMAL
HEART**



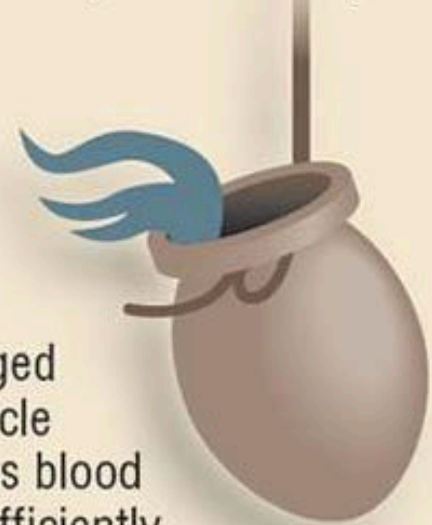
Left
ventricle

**'BROKEN'
HEART**



Enlarged
ventricle
pumps blood
less efficiently

This unusual syndrome is named after a Japanese octopus trap because of its shape on an X-ray.



Presentation and population

- Presentation: chest pain, ECG changes, wall motion and biomarkers
 - Not caused by plaque rupture
- Important to distinguish from a MI
 - 3% of suspected MI
- **>90% of those affected are women**
 - Mean age 65 years



Emotional triggers



- depression
- illness of a close person
- suicide attempt
- divorce
- posttraumatic stress disorder



- fear of speech
- robbery/burglary
- fear of surgery / hospitalization
- move to another city



- new job
- job loss
- bankruptcy
- retirement
- bulging at work



- debt
- huge loss of money



- death of a family member
- death of partner
- euthanasia of the pet



- argument with the partner / family
- argument with the landlord



- flooding
- earthquake
- storm



- car accident without injury
- downfall without fracture



- Happy heart syndrome
 - winning a jackpot
 - birthday party
 - birth of grandchild
 - wedding
 - visiting the opera
 - positive job interview



Physical triggers

- cerebral bleeding
- stroke, TIA
- epilepsy, seizure
- migraine
- PRES
- concussion
- aneurysm rupture



- exacerbation COPD
- asthma attack
- pneumonia
- bronchitis
- pulmonary embolism
- larynx spasm



- gastrointestinal bleeding
- Crohn's disease exacerbation
- hernia incarceration



- pheochromocytoma
- urosepsis
- urolithiasis



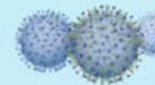
- giving birth
- vaginal bleeding



- cancer
- chemotherapy



- influenza
- sepsis
- peritonitis
- wound infection



- fracture



- operation



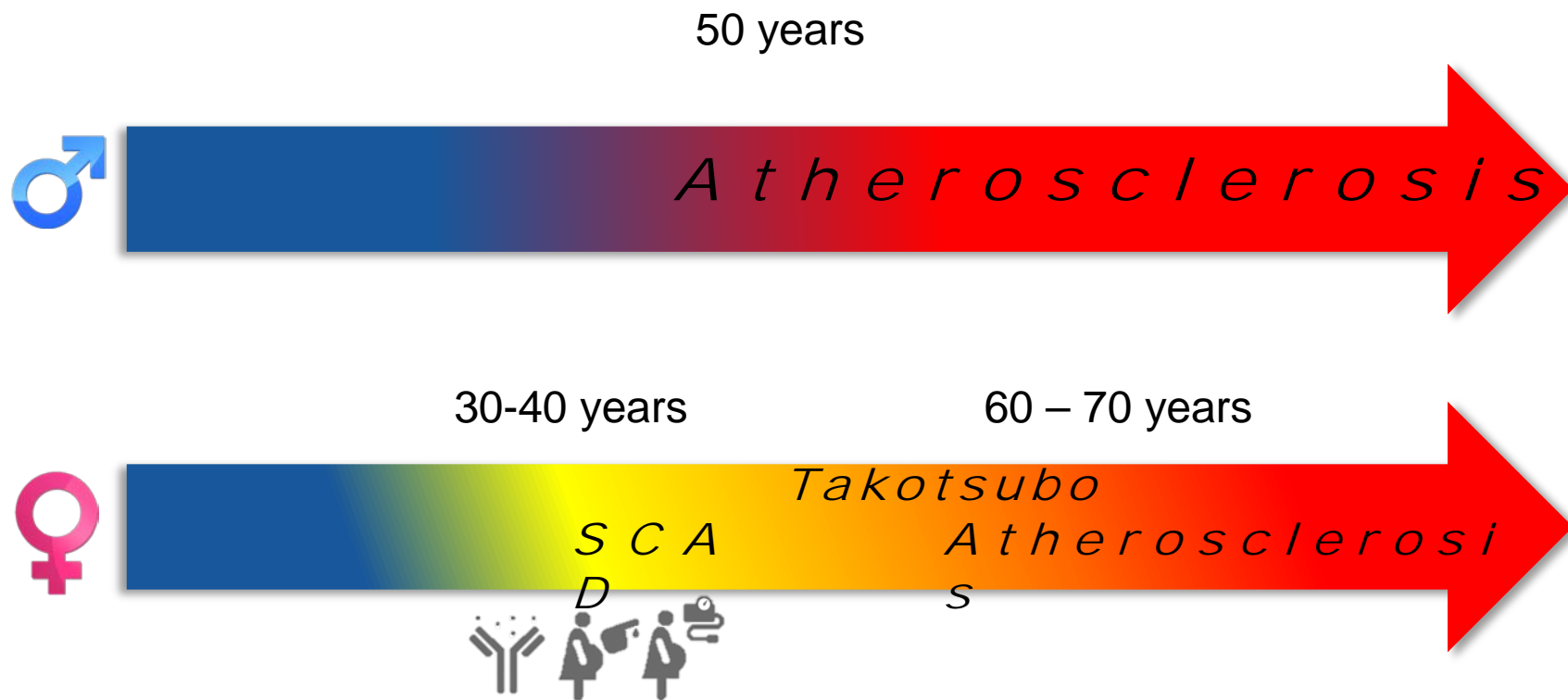
- anesthesia
- administration of catecholamines



Treatment of Takotsubo

- **Serious complications 20% → comparable to heart attack**
- No randomized control trials
- Supportive care in acute phase
- No clear benefit for:
 - Betablockers
 - Antiplatelets after hospitalization
 - Statin
- Some benefit with ACEI/ARB

Why/How Women's Heart Disease is Different



Summary

1. Heart disease is not “a man’s disease”
2. Women more likely to be overlooked and undertreated
3. Women more likely to have complications and die
4. **Medical professionals need to understand risk in women**

#TimeToSeeRed