Does gender matter in the evaluation and management of SIHD or ACS?

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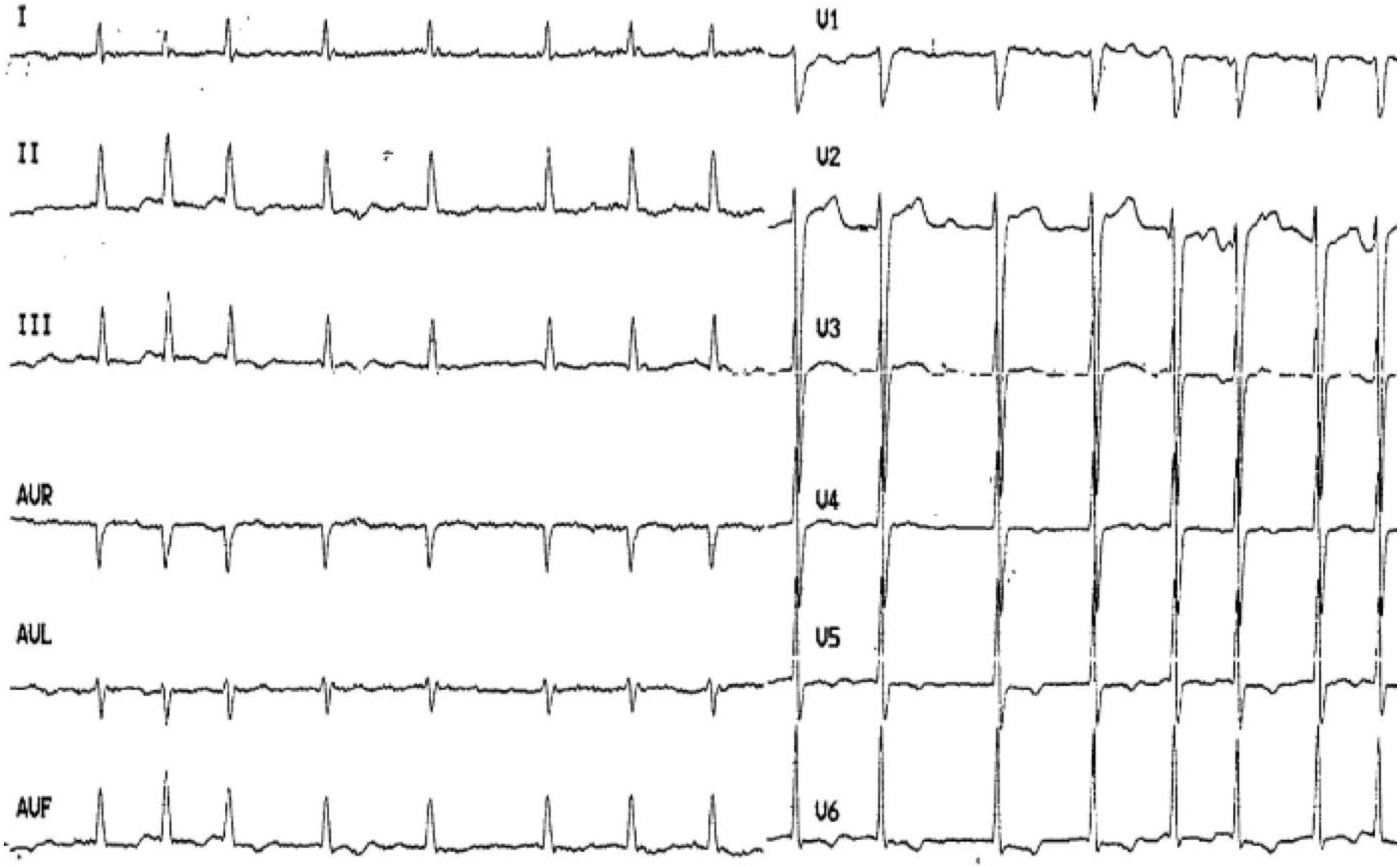
Case study

- 79 yo lady with history of chronic atrial fibrillation on oral anticoagulation, Sintrom (Acénocoumarol). Hypertensive on treatment. Dyslipidemia. History of rheumatoid arthritis
- Was admitted in 2015 with epistaxis. She had atrial fibrillation with a rapid ventricular response rate
- Echo: LV concentric hypertrophy, **EF 55-60%.** Severe RA & LA dilation. Mild AS. Moderate MR, moderate TR
- Medical management. She was followed up in clinic and remained stable

- In September 2017, she was admitted with decreased P.O. intake, generalized weakness and fatigue. Vague epigastric discomfort. No chest pain. Mild dyspnea

- She appeared in no acute distress
- Afebrile. Stable vital signs
- She had bibasilar rales L>R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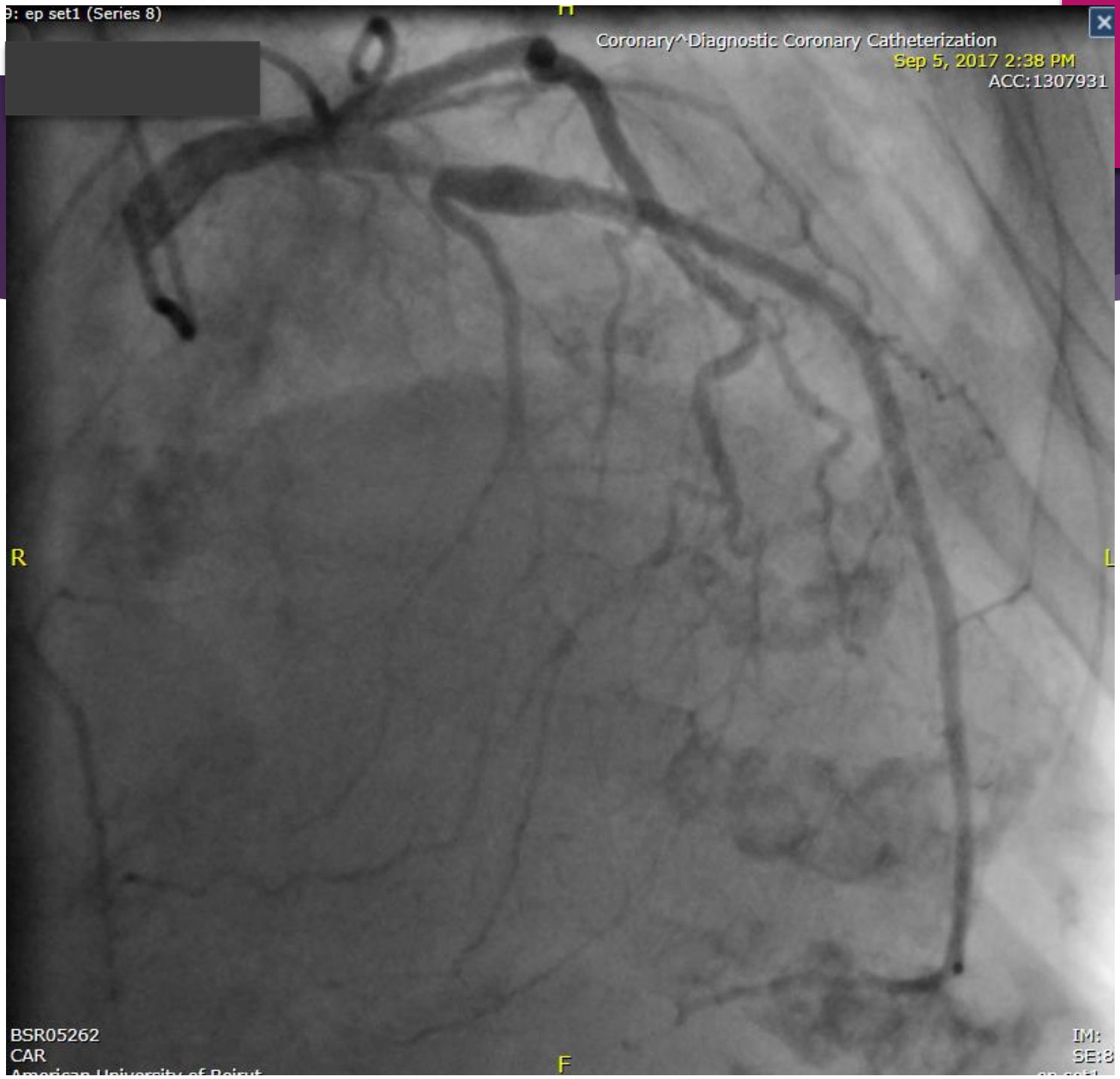
- CXR showed a left lower lobe consolidation/collapse suspicious of pneumonia. Mild interstitial edema
- **She was admitted to the pulmonary service**

- WBC count was normal
- Troponin was borderline (0.035ng/mL, N≤0.030)
- Pro BNP 4876 pg/mL
- Echo: **LVEF<20% and severe global LV hypokinesis**

- Cardiac cath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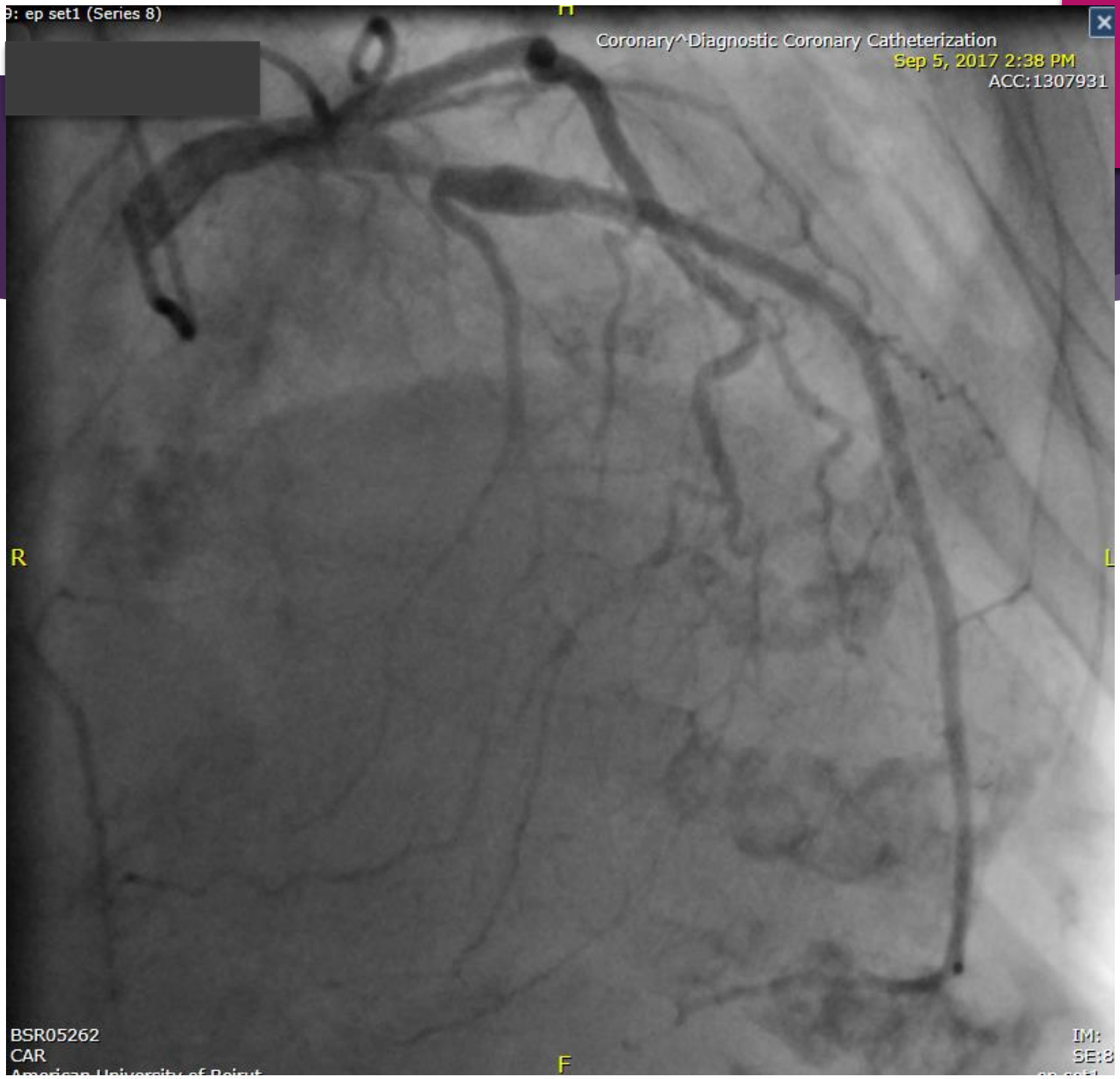
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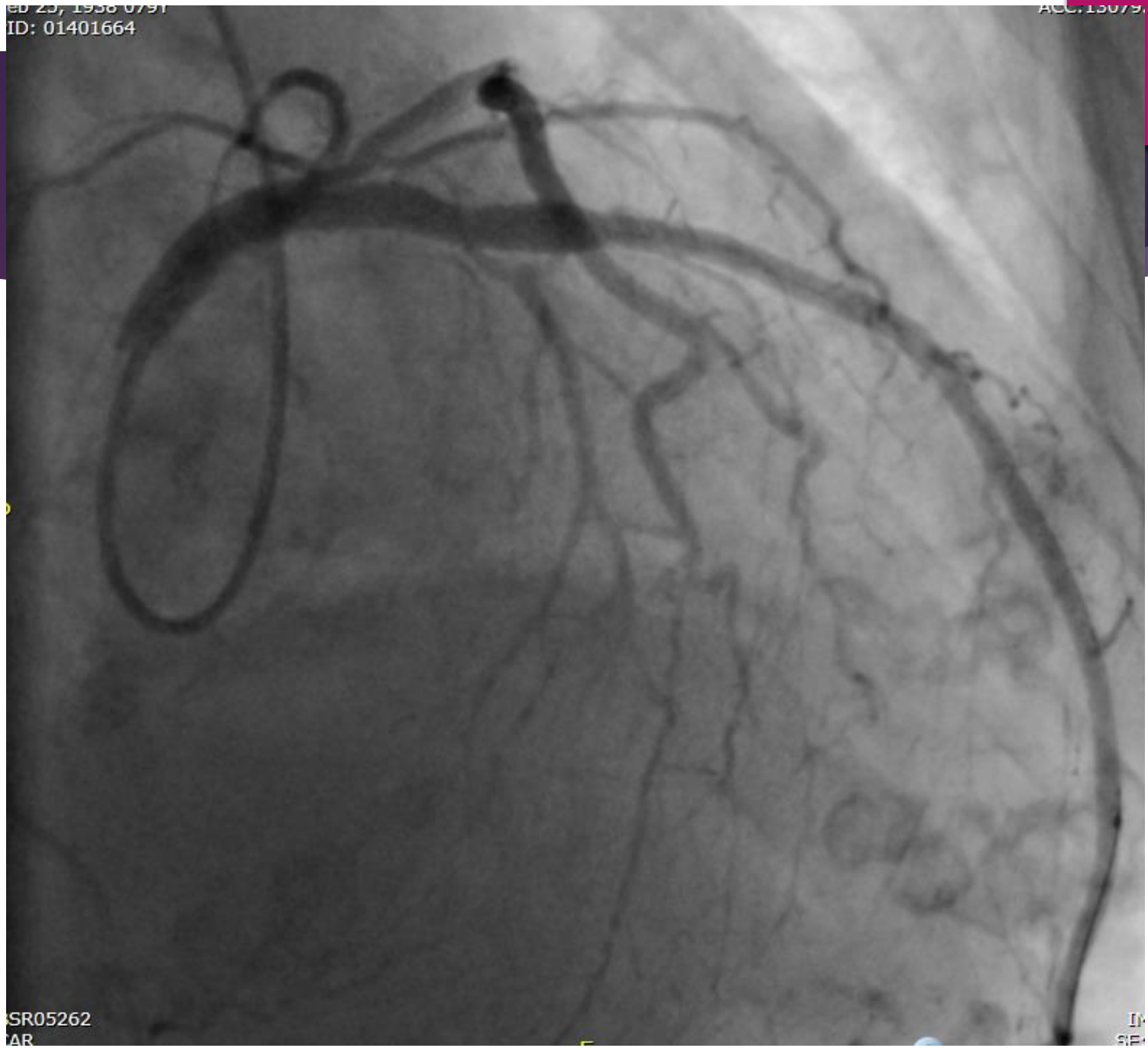
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- Although there are many similarities between and men and women with ischemic heart disease, there are also a number of differences including symptoms at presentation

Heart disease is the number one killer of women

IHD in women

- Compared to men, the incidence of CHD in women lags behind by 10 years
- Possible protective effect in women prior to menopause

- **The mortality in women is greater with acute MI**

Coronary Reactivity in Women

- Women are more prone to a variety of vascular disorders such as migraine headaches
- Women are more predisposed to:
  - Endothelial dysfunction
  - Microvascular dysfunction
  - Plaque erosion

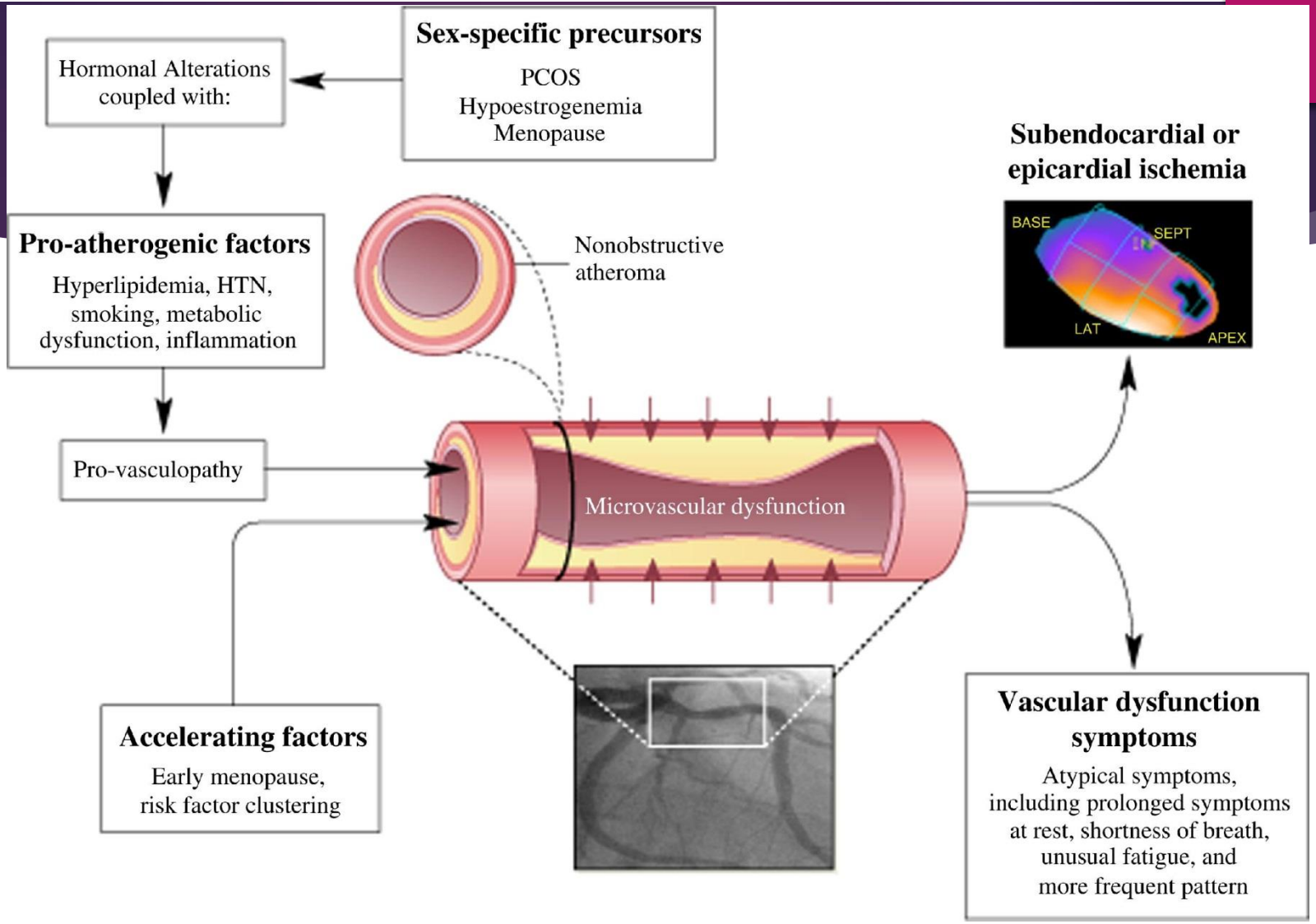
C-reactive protein as a novel risk factor for IHD in Women

Shaw LJ et.al. JACC Volume 54, Issue 17, 2009

- Compared to men, women have on average a higher CRP, consistent with the 2- to 50-fold greater frequency of inflammatory-mediated autoimmune diseases
- This suggests an important role for inflammation in IHD in women compared to men
- The relative risk of future IHD events increases proportionally with increasing levels of high-sensitivity C-reactive protein (hsCRP)

Assessment of Cardiovascular Risk in Women

- The **Reynolds risk score** is a sex-specific tool devised from large derivation and validation cohorts of women
- It includes the conventional CVD risk factors **in addition to family history and hsCRP.**
- When compared with the FRS, use of the Reynold's score resulted in risk reclassification in >40% of intermediate FRS women
- **These data underscore the imprecision of FRS estimates in women and the prevalent, undetected burden of atherosclerosis in females**
- *JACC Vol. 54, No. 17, 2009 October 20, 2009:1561–75*



Model of Microvascular Angina in Women
Shaw LJ et.al. JACC Volume 54, Issue 17, 2009

Symptoms and clinical presentation

- Women in general have more "atypical" angina
- But in obstructive CAD and in ACS, the presentation is more often typical

- **A large percentage of symptomatic women with non obstructive coronary disease will continue to have signs and symptoms of ischemia and will require re-hospitalization**

Symptoms and clinical presentation

- Women with symptoms and signs suggestive of ischemia but without obstructive CAD are at elevated risk for cardiovascular events compared with asymptomatic community-based women *[*Women's Ischemia Syndrome Evaluation (WISE) *Gulati M et al. Arch Intern Med. 2009]*

- **In the WISE study, approximately half of the women with chest pain and ischemia without obstructive CAD had evidence of microvascular dysfunction**

Acute Coronary Syndrome

- For women presenting with ACS/ST- segment elevation myocardial infarction (STEMI), 10% to 25% of women as compared with 6% to 10% of men have no obstructive CAD (defined as <50% stenosis)

Women have less obstructive CAD and less severe MIs yet worse clinical outcomes compared to men

Heart Disease in Women

- Women continue to delay seeking treatment for ACS, despite the favorable impact of early treatment on both survival and clinical outcomes
- IHD in women presents a unique and difficult challenge for clinicians as the result of a **greater symptom burden, functional disability, greater health care needs and healthcare costs, and more adverse outcomes as compared with men despite a lower prevalence and severity of anatomical CAD.**

Raise Awareness

WOMEN & HEART DISEASE

CardioSmart
American College of Cardiology

Be Your Own HEART HERO

STAND UP for your HEALTH!

- **GET SCREENED** every year
- **DON'T IGNORE** symptoms
- **ASK QUESTIONS** about your heart health

HEART DISEASE is the **#1 KILLER OF WOMEN**

It causes **MORE WOMEN'S DEATHS THAN CANCER,** including breast cancer

HEART ATTACK SYMPTOMS

- Arm, neck, jaw or back pain
- Chest pain or discomfort
- Shortness of breath
- Nausea or vomiting
- Dizziness or lightheadedness

OTHER SYMPTOMS:

- Cold sweat
- Unusual tiredness
- Trouble sleeping

RISK FACTORS UNIQUE TO WOMEN

Many women experience **NO SYMPTOMS.** It's important to **KNOW YOUR RISKS.**

- **MENOPAUSE**
- Many **OVARIAN CYSTS**
- **HIGH BLOOD PRESSURE** or **DIABETES** during pregnancy

Information provided for educational purposes only. Please consult your health care provider about your specific health needs.

For more information, visit *CardioSmart.org/WomenHeartDisease*

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The challenges in understanding the manifestations of CAD in women include:

- 1) better understanding of the complexity of presenting symptoms that appear to be gender-specific
- 2) defining appropriate **noninvasive** tests that should identify not only those with obstructive CAD but also the subset with normal coronary arteries who are at increased risk of cardiovascular event; and
- 3) understanding of the gender-specific pathophysiology of chest pain, ischemia, disability, and factors determining progression from minimal atherosclerosis to ischemic events

- Arshed A. Quyyumi, MD
  J Am Coll Cardiol 2006

Arshed A. Quyyumi, MD
J Am Coll Cardiol 2006

- The standard approach of symptomatic presentation leading to stress testing, coronary angiography, and lesion-specific therapy, although reasonable in those with obstructive CAD, **may not be appropriate for all women**

What is needed:

- Improve awareness
- Healthcare providers should be more vigilant when managing women with vague symptoms (e.g. atypical pain/discomfort, indigestion, unusual tiredness, extreme fatigue)
- Enroll more women in clinical trials
- More research is needed in the diagnosis and treatment of women and heart disease (classic antianginals, ACEi, statins, tricyclic anti-depressants, L-arginine etc…)