**6. Cardiac Symptom Evaluation By Andrew Bromley**

**(a) Palpitations**

**Overview**

* Common ambulatory complaint
* Symptom timing and cardiac causes:
  + Transient palpitations often due to premature beats
  + Slow onset and offset more consistent with sinus tachycardia
  + Rapid onset and termination may suggest SVT or VT
* Differential to consider in work-up of palpitations:
  + *Cardiac*: arrhythmias, valvular heart disease, atrial myxoma, cardiomyopathy
  + *Endocrine/Metabolic*: thyrotoxicosis, hypoglycemia, pheochromocytoma
  + *Medications*: nicotine, caffeine, cocaine, amphetamines, sympathomimetic agents, vasodilators (e.g. CCBs), anticholinergic medications, BB withdrawal
  + Psych: panic disorder, GAD, depression w/ anxiety, somatization
  + *Other*: anemia, pregnancy, high fevers, stress

**At IMA:**

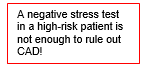
* Work-up:
  + **12-lead ECG**
  + **Lab work**: CBC, TSH, BMP
  + **Imaging**: TTE in pts w/ signs/sxs/risk for structural heart disease
  + **Ambulatory EKG monitoring**: may be necessary in pts whose evaluation suggests an arrhythmia, those at higher risk (male gender, event duration >5 mins, irregular rhythm, hx of cardiac disease)
    - Holter Monitor (Ambulatory EKG)
    - Event Monitor
    - Loop Recorder
* How to order ambulatory EKG monitoring:
  + Pt must be seen by a Mount Sinai Cardiologist. Therefore…
    - Pt has a Mount Sinai Cardiologist: order “Holter Monitor”
    - Pt does not have Mount Sinai Cardiologist: order “consult to cardiology.” Pt can call (212) 427-1540 to schedule appointment.

**(b) Chest Pain Evaluation**

**Overview:**

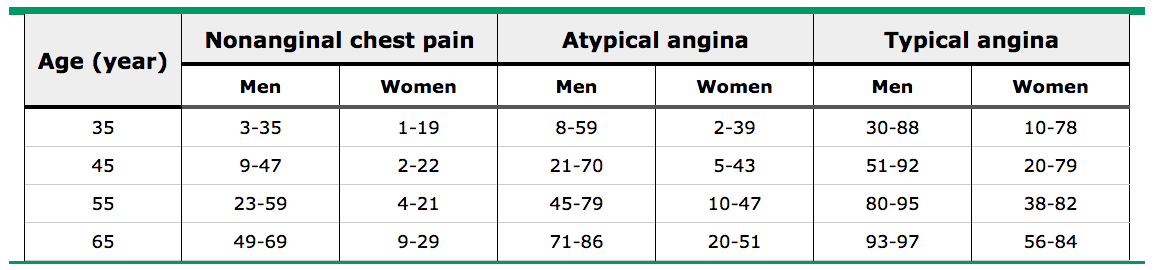
* Differential Diagnosis:
  + **MSK**: costochondritis, muscle strain
  + **CV**: CAD, coronary vasospasm, pericarditis, Dissection
  + **GI**: GERD, Achalasia, DES, Esophagitis
  + **Pulm**: PE, Lung Cancer, Pneumonia, Pneumothorax, Pleuritis
  + **Other**: Anxiety, Zoster
* Defining chest pain:
  + **1)** substernal chest discomfort of characteristic quality (i.e., pressure, heaviness) and duration (seconds to minutes, not hours to days) **2)** exacerbated by exertion and **3)** relieved by rest or SL nitroglycerin
    - **Typical**: fits all three characteristics
    - **Atypical**: two of the characteristics
    - **Non-anginal** or **non-cardiac chest pain**: only one of the characteristics or none
* Risk Stratification: by type of chest pain, age, and gender



* Management:
  + **Low risk**🡪 no intervention
  + **Intermediate risk**🡪
    - Ideal candidate for a stress test
    - To determine what type of stress test to order, see below
  + **High risk🡪**
    - Refer to cardiology for catheterization

**Stress Testing**

* There are multiple modalities at our disposal for the evaluation of CAD
* Determining the need for stress test must take into account the **pre-test probability** that the patient's chest pain is related to CAD:



* + 1st: Determine the type of chest pain your patient is having (see above)
  + 2nd” Determine whether your patient falls into a low, intermediate, or high-risk group
    - Stress test is most appropriate and of highest yield for patients with **intermediate-risk**
    - Before considering a stress test for your patient, be sure that you would want to pursue the further workup involved with a positive stress test. Would you and your patient pursue a **left-heart catheterization**? If the answer is no, consider whether it is then worthwhile to even get a stress test.

**Types of Stress Tests:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **ECG** | **Echo** | **Nuclear** |
| **Exercise** | Sens: 68%  Spec: 77% | Sens: 86%  Spec: 81% | Sens: 87%  Spec: 73% |
| **Pharmacologic** | *Not an option* | Dobutamine | Adenosine *or*  Dipyridamole |
| **What is studied** | ST-segment changes, T wave inversions, or arrhythmias w/ exercise | Regional wall motion abnormalities | Myocardial perfusion and viability |
| **Pro** | Simple, inexpensive, well-validated.  Physiologic.  Assesses exercise capacity.  No need for IV access or radiation | Well-validated  No radiation exposure  Can be exercise or pharmacologic  Shows myocardial function and regional wall motion abnormalities | Most sensitive  Provides anatomic details and LV function  Provides prognostic information  Provides assessment of myocardial viability |
| **Con** | Less sensitive (especially in women)  Requires good exercise tolerance  Cannot be used in pts w/ pre-existing ECG abnormalities: 1) underlying BBB 2) ST-segment depressions 3) on Digoxin 4) repolarization abnormalities 5) WPW | Hypertensive response to stress may result in FPs (reversible wall motion abnormalities)  Very obese pts may have poor windows for echo | Expensive  Radiation exposure  Slow  More prone to artifact  Adenosine must be avoided in asthma pts |

* Thinking through which stress test to order for your patient?
  + *1) Can the patient exercise?*
    - **Yes**:
      * *2) Are there underlying ECG abnormalities?* 
        + **No** → Exercise ECG
        + **Yes**:

*3) Wall motion abnormalities?*

**No** → Exercise ECHO

**Yes** → MPI

* + - **No**:
      * *3) Wall motion abnormalities?*
        + **No** → Pharmacologic stress ECHO
        + **Yes** → MPI

**At IMA:**

* Tests that we can order from IMA:
  + Exercise stress test
  + Myocardial perfusion stress test
  + Dobutamine Stress test
* Once ordered, have your patient schedule the test by calling (855) 674-3278.
* For all other tests or complex decisions, consider referring your patient to cardiology: “Consult to Cardiology” and patient can call (212) 427-1540 to schedule.
* If an expedited appointment is needed, you can email the schedulers listed in the IMA app under the “Cardiology” section