Cardiac Workup of Chest Pain in the Low-Risk Patient

Theodore D Fraker, Jr, MD
Professor of Medicine
Cardiac Workup of Chest Pain in the Low-Risk Patient

- The importance of the H&P
- The Risk Calculator
- Get an ECG
- Check the Lipids
- Chest X-ray?
- Stress testing as a last resort
Cardiac Workup of Chest Pain in the Low-Risk Patient

- The History
  - Nature and location of chest pain
  - Provocation of chest pain
  - Taco Bell?
  - Associated Dyspnea?

- The Exam
  - Pericardial Rub?
  - Murmurs or gallops
  - Chest wall tenderness
  - Epigastric tenderness
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- Remember Tietze’s Syndrome:
  - First described by the German surgeon, Alexander Tietze in 1921
  - Characterized by painful **swelling** of the costrochondral junction with pain radiation to the shoulder or arm
  - Differentiated from costrochondritis (which is much more common) which does not manifest swelling or radiation of the pain
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- The Risk Calculators:
  - Framingham
  - SCORE
  - Assign-SCORE
  - QRISK1 and QRISK2
    - [http://qrisk.org/](http://qrisk.org/)
  - PROCAM
  - WHO/ISH
  - Reynolds Risk Score
    - [http://www.reynoldsriskscore.org/](http://www.reynoldsriskscore.org/)

JACC 2009;54:1209-27
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- Risk Calculator


Risk Assessment Tool for Estimating 10-year Risk of Developing Hard CHD (Myocardial Infarction and Coronary Death)

The risk assessment tool below uses recent data from the Framingham Heart Study to estimate 10-year risk for “hard” coronary heart disease outcomes (myocardial infarction and coronary death). This tool is designed to estimate risk in adults aged 20 and older who do not have heart disease or diabetes. Use the calculator below to estimate 10-year risk.

Age:
Gender:
Total Cholesterol:
HDL Cholesterol:
Smoker:
Systolic Blood Pressure:
Currently on any medication to treat high blood pressure.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>35 years</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
</tr>
<tr>
<td>Total Cholesterol</td>
<td>200 mg/dL</td>
</tr>
<tr>
<td>HDL Cholesterol</td>
<td>65 mg/dL</td>
</tr>
<tr>
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[Calculate 10-Year Risk]
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<td>No</td>
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<td><strong>Risk Score</strong></td>
<td>Less than 1%</td>
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* The risk score shown was derived on the basis of an equation. Other NCEP materials, such as ATP III print products, use a point-based system to calculate a risk score that approximates the equation-based one.

To interpret the risk score and for specific information about CHD risk assessment as part of detection, evaluation, and treatment of high blood cholesterol, see [ATP III Executive Summary](#) and [ATP III At-a-Glance](#).
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- **A Word about GERD:**
  - Most common GI diagnosis recorded in outpatient visits
  - Affects 14-20% of the adult population
  - Rising prevalence linked to increasing obesity, especially abdominal obesity
  - Rising incidence of esophageal adenocarcinoma thought to be linked to increased prevalence of GERD
  - Chest pain, laryngitis and cough are common symptoms
  - Imperfect relationship between symptoms and endoscopic features
  - PPI’s more effective than H2 blockers

NEJM 2008;359:1700-7
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- Get an ECG:
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- Get an ECG:

<table>
<thead>
<tr>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>V6</th>
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<tbody>
<tr>
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<td><img src="image4" alt="Normal ST-segment elevation" /></td>
<td><img src="image5" alt="Normal ST-segment elevation" /></td>
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</tr>
<tr>
<td><img src="image7" alt="Early repolarization pattern" /></td>
<td><img src="image8" alt="Early repolarization pattern" /></td>
<td><img src="image9" alt="Early repolarization pattern" /></td>
<td><img src="image10" alt="Early repolarization pattern" /></td>
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<td><img src="image12" alt="Early repolarization pattern" /></td>
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- When to do Stress Testing:
  - The “low risk” patient is not so low risk (lipids, blood pressure, suspected smoking history)
  - Symptoms fail to improve with a PPI
  - Dyspnea becomes the prevailing complaint
  - Prior to beginning an exercise program in middle-aged persons
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- What do you Learn from Stress Testing?
  - Additional prognostic/risk information
    - Duke treadmill score
  - Exercise capacity
  - Heart rate and blood pressure responses
  - Ischemia detection
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- Duke Treadmill Score:

American College of Cardiology Foundation - www.acc.org
American Heart Association - www.americanheart.org

Gibbons et al. 2002
ACC/AHA Practice Guidelines
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- When to do Stress Testing with Perfusion or Functional Imaging:
  - If the baseline ECG is abnormal
  - In intermediate risk persons, especially women
  - When the routine stress ECG is abnormal
  - When a low ejection fraction is suspected