

# O MI! A STEMI Paradigm Shift?

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# Learning Objectives:

1. Review history of reperfusion
2. Understand why STEMI/NSTEMI dichotomy may be inadequate
3. Introduce the term Occlusion Myocardial Infarction









**Q-WAVE**

**NON Q-WAVE**





**FIBRINOLYTIC**

**THERAPY**

**TRIALISTS'**

**1994**

**60,000 PATIENTS**

**60,000 PATIENTS**

**THROMBOLYTICS VS.  
PLACEBO**

**NNNT=56**

**4 OF 9**

**NO ECG CRITERIA**

**1/3 NO STE**

# SUBGROUP ANALYSIS

**NNT=43**



**REPERFUSION ERA**





**SO WHAT**

**NEXT?**



**FIBRINOLYTIC**

**THERAPY**

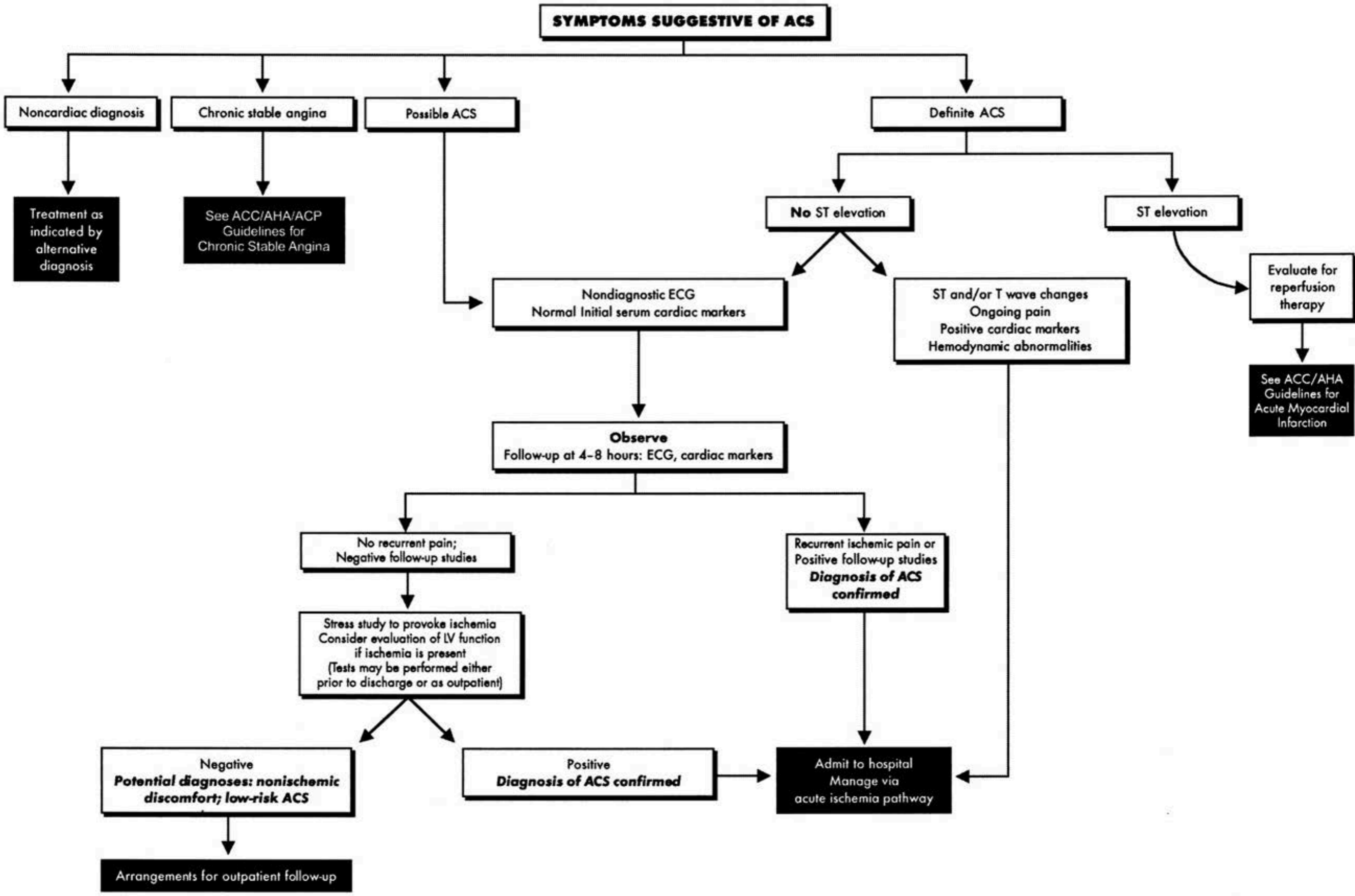
**TRIALISTS'**

**1994**

**2000**

**ACC/AHA**

**GUIDELINES FOR  
UNSTABLE ANGINA**



**SYMPTOMS SUGGESTIVE OF ACS**

**Noncardiac diagnosis**

**Treatment as indicated by alternative diagnosis**

**Chronic stable angina**

**See ACC/AHA/ACP Guidelines for Chronic Stable Angina**

**Possible ACS**

**Nondiagnostic ECG**  
Normal Initial serum cardiac markers

**Observe**  
Follow-up at 4-8 hours: ECG, cardiac markers

**No recurrent pain;**  
Negative follow-up studies

**Stress study to provoke ischemia**  
Consider evaluation of LV function if ischemia is present  
(Tests may be performed either prior to discharge or as outpatient)

**Negative**  
**Potential diagnoses: nonischemic discomfort; low-risk ACS**

**Arrangements for outpatient follow-up**

**Positive**  
**Diagnosis of ACS confirmed**

**Admit to hospital**  
Manage via acute ischemia pathway

**No ST elevation**

**ST and/or T wave changes**  
Ongoing pain  
Positive cardiac markers  
Hemodynamic abnormalities

**Definite ACS**

**ST elevation**

**Evaluate for reperfusion therapy**

**See ACC/AHA Guidelines for Acute Myocardial Infarction**

**DEFINITIVE OF ACS**

**Definite ACS**

**No ST elevation**

**ST elevation**

**Cardiac markers**

ST and/or T wave changes  
Ongoing pain  
Positive cardiac markers  
Hemodynamic abnormalities

Evaluate for  
reperfusion  
therapy

See ACC/AHA  
Guidelines for  
Acute Myocardial  
Infarction

**Cardiac markers**

**2000**

**EUROPEAN HEART  
JOURNAL**

**>2MM STE IN  
ANTEROSEPTAL LEADS**



**2000**

**ACC/ESC 1ST**

**UNIVERSAL**

**DEFINITION OF MI**

# ACC/ESC 1ST UNIVERSAL DEFINITION OF MI

- > **2MM** STE IN V1-V3
- > **1MM** STE ALL OTHERS

**2001**

**MACFARLANE ET AL**

**AGE AND SEX**

**DETERMINANTS**



**ЗМММ**

**2004**

**ACC/AHA STEMI  
GUIDELINES**

**>1MM STE IN ANY TWO  
CONTIGUOUS LEADS**

**2004**

**MACFARLANE ET AL**

**IN-DEPTH CRITERIA  
FOR STE**

**2004**

**MACFARLANE ET AL**

**2.3** FOR AVL AND I

**3.5** FOR II, AVF, III

**2.5** FOR V1-V4

**2004**

**MACFARLANE ET AL**

**“CERTAIN OTHER  
RESTRICTIONS  
APPLY”**



**2007**

**ACC/ESC 2ND**

**UNIVERSAL**

**DEFINITION OF MI**

# ACC/ESC 2ND UNIVERSAL DEFINITION OF MI

**1 STE** IN 2 CONTIGUOUS LEADS  
EXCEPT V2-V3 WHICH IS **1.5** FOR  
WOMEN AND **2** FOR MEN

**2009**

**AHA / ACCF / HRS**

**CURRENT STEMI**

**GUIDELINES**

# CURRENT STEMI GUIDELINES

V2-V3 **>2.5** MEN <40

V2-V3 **>2** MEN >40

V2-V3 **>1.5** WOMEN

**2012**

**ACC/ESC 3RD**

**UNIVERSAL**

**DEFINITION OF MI**





**NSTEMI DIAGNOSIS  
MISSES**

**25-30%**

**ACUTE CORONARY  
OCCLUSIONS**



**2001**

**SCHMITT ET AL**

**29%**

**2002**

**KOYAMA ET AL**

**47%**

**2007**

**KHAN ET AL**

**25.5%**

**2009**

**WANG ET AL**

**27%**

**2010**

**FROM ET AL**

**28%**

**2010**

**PRIDE ET AL**

**26.2%**

**2012**

**SMITH ET AL**

**22%**

**2014**

**MARTI ET AL**

**18%**



**2020**

**MEYERS ET AL**

**234**

**2020**

**MEYERS ET AL**

**234**

**67 STEMI**

**167 NSTEMI**

**2020**

**MEYERS ET AL**

**234**

**108 OMI**

**126 NOMI**

**2021**

**MEYERS ET AL**

**265**

**2021**

**MEYERS ET AL**

**265**

**146 (55%)**

1. **SUBTLE STE**
2. **HYPERACUTE T WAVE**
3. **RECIPROCAL ST  
DEPRESSION**
4. **ST DEPRESSION  
MAXIMAL IN V1-V4**

**5. SUSPECTED ACUTE Q  
WAVE**

**6. TERMINAL QRS  
DISTORTION**

**7. ANY STE IN INFERIOR  
LEADS**

**8. + MODIFIED SGARBOSSA**









QUARTZ

11 12 1 2 3 4 5 6 7 8 9 10

23 24 13 14 15 16 17 18 19 20 21 22

**REFRACTORY ISCHEMIA  
EXCLUDED**



**STEMI**

**OMI**

**OCCLUSION MYOCARDIAL INFARCTION**