Effective Health Care

Modalities for the Detection of Vulnerable Plaques
Nomination Summary Document

Results of Topic Selection Process & Next Steps

- Modalities for the detection of vulnerable plaques is not feasible for a full systematic review due to the limited data available for a review at this time; however, it will be considered for a potential technical brief by the Effective Health Care (EHC) Program.

- To see a description of a technical brief, please go to http://effectivehealthcare.ahrq.gov/index.cfm/research-for-policymakers-researchers-and-others/.

- If this topic is developed into a technical brief, key questions will be drafted and posted on the AHRQ Web site. To sign up for notification when this and other EHC Program topics are posted, please go to http://effectivehealthcare.ahrq.gov/index.cfm/join-the-email-list1/.

Topic Description

Nominator: Government agency

Nomination Summary: Coronary artery disease and acute coronary syndromes are a leading cause of morbidity and mortality. Plaque rupture and thrombosis are commonly associated with myocardial infarction (MI) and unstable angina. Therefore, the ability to identify a vulnerable plaque has major clinical implications. There are new technologies that claim to identify vulnerable plaques (VPs). One device recently approved by the FDA is LipiScan, which uses infrared spectroscopy (IR) to identify lipid rich plaques (plaques that may have a higher probability of subsequent rupture).

Population(s): Adults (>18 years) with coronary artery disease (e.g., unstable angina) who are undergoing cardiac catheterization
Intervention(s): Identifiers of VPs, especially the LipiScan device, which uses IR to detect plaques
Comparator(s): Cardiac catheterization
Outcome(s): Improved identification of VPs. In patients with a history of MI or individuals with unstable angina, reduced rates of MI and mortality. Short-term outcomes of interest include more aggressive risk factor management.

Key Questions from Nominator:

1. What are the imaging modalities proposed to identify high risk plaques (e.g., infrared spectroscopy)?
2. What are the theoretical advantages and disadvantages of these devices?
3. What are the harms associated with this technology?
4. What are the instrumentation requirements?

Considerations

- The topic meets EHC Program appropriateness and importance criteria. (For more information, see http://effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/how-are-research-topics-chosen/.)

- Heart disease, which incorporates coronary artery disease, is the number one cause of death in the United States. The majority of fatal myocardial infarctions and sudden coronary deaths can be attributed to plaque rupture. Finding a way to adequately and accurately assess coronary plaques that are at risk for rupture is a high priority for certain cardiovascular researchers. Finding a technique that accurately and quickly identifies these VPs could lead to significant improvements in treatments for those at highest risk of myocardial infarction (or the "sudden coronary event").

- There are controversies over what constitutes vulnerable plaques and management. There is growing interest around the concept, although dissemination of the technology is not widespread. Consultation with several decision makers in this field indicates that a technical brief on this topic will be useful.