Content Description

Cardiac catheterizations are performed for many reasons including, but not limited to, chest pain, abnormal stress tests, suspected ST elevation myocardial infarction (STEMI), and non-STEMI. Percutaneous coronary intervention (PCI) is a common treatment option for patients with symptomatic obstructive coronary artery disease and is the preferred treatment for patients who suffer an STEMI. Using cardiac catheterization films, case studies will be presented including: a patient who suffered an STEMI secondary to stent thrombosis, a patient who suffered a non-STEMI secondary to in-stent restenosis in a native coronary and a patient who suffered a non-STEMI secondary to saphenous vein bypass disease, a patient with a groin complication post PCI, and a patient with coronary vasospasm.

Learning Objectives

At the end of this session, the participant will be able to:

1. Define the difference between stent thrombosis and in-stent restenosis

2. Describe the rationale for and the duration of dual antiplatelet therapy for both bare metal and drug eluting stents as described in the 2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention

3. Describe the Heart Team approach to revascularization decisions as described in the 2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention

Outline

I. Case study # 1: A 83 year old female who initially received bare metal stents after a non-STEMI, develops in-stent restenosis within 2 months
   a. In-stent restenosis: overgrowth of tissue (neointimal hyperplasia) inside either a bare metal stent or a drug eluting stent
   b. The problem of restenosis is the reason drug-eluting stents were developed
II. Case study #2: A 49 year old male stopped his dual anti-platelet therapy after receiving a drug eluting stent (DES) 9 months ago. He complains of chest pain shoveling snow. He arrives in the emergency department with a STEMI.

a. DES is a stent with an antiproliferative medication within a polymer coating loaded onto the metallic stent to inhibit neointimal hyperplasia (which causes in-stent re-stenosis)

b. Definition of stent thrombosis - blood clot within a stent

c. Importance of dual antiplatelet therapy after placement of a bare metal or drug-eluting stent

   i. Bare metal stent - **minimum of 1 month** but ideally up to one year

   ii. Drug eluting stent - **minimum of 1 year** without interruption (CANNOT even be stopped for 5 days before any procedure)

d. Importance of continuing aspirin daily forever after stent placement

III. Case study #3: A 64 year old patient with exertional chest pain and inferior ischemia on an outpatient stress test, who is planning to have a hip replacement. He is admitted for an elective cardiac catheterization because of an abnormal pre-operative stress test for inferior ischemia. The catheterization revealed a tight left anterior descending lesion and a total occlusion of the right coronary artery. What are the treatment options and how are the treatment decisions made?

a. What is the “heart team approach” to revascularization decisions?

b. What type of stent should be placed in a person contemplating hip replacement surgery within the year?

c. What would be the optimal timing of hip replacement surgery after receiving a bare metal stent?

IV. Case study #4: A 69 year-old male is admitted for an elective cardiac cath for chest pain with an abnormal stress test (anterior ischemia). His cath revealed an LAD bifurcation lesion (involved the LAD and a large diagonal branch)

a. Use of the “Heart team approach” for this patient

b. A potential complication performing a PCI on a patient with a bifurcation lesion
V. Case study #5: A 52 year-old female is found unresponsive on the sidewalk. She is taken to the hospital where a neurology work-up is undertaken. Less than 1 day after admission, she develops ST elevations and is transferred immediately to the cath lab.

a. Coronary vasospasm

b. Medications used to treat coronary vasospasm

VI. Case study #6: An 80 year-old female is admitted with a NSTEMI and has recurrent angina. She has a history of a prior MI and a CABG x 4 in 2001. She also has diabetes, hyperlipidemia and hypertension. Her cardiac cath reveals patent bypass grafts to her LAD, diagonal and left circumflex arteries. The vein bypass graft to her R posterior descending artery has a significant occlusion (it is the culprit lesion for her NSTEMI).

a. What device may help reduce the patient’s risk of another MI during the PCI?

b. The patient develops the problem of no re-flow during PCI. What is no re-flow?

c. What medications may be used to resolve the problem of no re-flow during PCI

VII. Case study #7: A patent undergoes an uncomplicated elective PCI but develops a pseudoaneurysm post procedure.

a. What is a pseudoaneurysm?

b. What are signs and symptoms of a pseudoaneurysm?

c. How is a pseudoaneurysm diagnosed?

d. How is a pseudoaneurysm non-surgically treated?

References


Levine GN, Bates ER, Blankenship JC, Bailey SR, Bittl JA, Cercek B, Chambers CE, Ellis SG,


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