Curriculum for Interventional Cardiology Program

A. Clinical Experience

Fellows will have formal instruction and acquire clinical experience in the prevention, evaluation and management of both inpatients and outpatients with the following disorders:

a) chronic ischemic heart disease;
b) acute ischemic syndromes;
c) valvular and structural heart disease;
d) bleeding disorders or complications associated with percutaneous intervention or drugs, including but not limited to:
    1. bleeding after thrombolytic usage;
    2. direct or indirect thrombin inhibitor usage;
    3. glycoprotein IIb/IIIa inhibitor usage; and
    4. thienopyridine or other antiplatelet usage.
e) use and limitations of intra-aortic balloon counterpulsation (IABP) and other hemodynamic support devices;
f) consultation and informed consent;
g) care of patients in the cardiac care unit, emergency department, or other intensive care settings;
h) care of the patient before and after interventional procedures;
i) outpatient follow-up of patients treated with drugs, interventions, devices, or surgery;
j) use of antiarrhythmic drugs, including knowledge of pharmacokinetics and pharmacodynamics related to acute ischemic events occurring during and after interventional cardiac procedures;
k) use of thrombolytic and antithrombolytic, antiplatelet, and antithrombin agents; and
l) use of vasoactive agents for epicardial and microvascular spasm.

B. Technical and Other Skills

Fellows will receive formal instruction and clinical experience in the performance of the following:

a) coronary arteriograms;
b) ventriculography;
c) hemodynamic measurements;
d) intravascular ultrasound;
e) Doppler flow, intracoronary pressure measurement and monitoring, and coronary flow reserve;
f) coronary interventions:
    1. Femoral and brachial/radial cannulation of normal and abnormally located coronary ostia; and
    2. Application and usage of balloon angioplasty, stents, and other commonly used interventional devices.
g) Management of mechanical complications of percutaneous intervention, including but not limited to:
    1. coronary dissection;
    2. thrombosis:

3. spasm;
4. perforation;
5. "slow reflow";
6. cardiogenic shock;
7. left main trunk dissection;
8. cardiac tamponade including pericardiocentesis;
9. peripheral vessel occlusion, and retained components; and
10. pseudoaneurysm.

C. Formal Instruction

The training program will provide formal instruction for the fellows to acquire knowledge of the following content areas:

a) the role of platelets and the clotting cascade in response to vascular injury;
b) pathophysiology of restenosis;
c) the role and limitations of established and emerging therapy for treatment of restenosis;
d) physiology of coronary flow and detection of flow-limiting conditions;
e) detailed coronary anatomy;
f) radiation physics, biology, and safety related to the use of x-ray imaging equipment;
g) the role of randomized clinical trials and registry experiences in clinical decision-making;
h) the clinical importance of complete versus incomplete revascularization in a wide variety of clinical and anatomic situations;
i) strengths and limitations, both short- and long-term, of percutaneous versus surgical and medical therapy for a wide variety of clinical and anatomic situations related to cardiovascular disease;
j) strengths and limitations, both short- and long-term of differing percutaneous approaches for a wide variety of anatomic situations related to cardiovascular disease;
k) the role of emergency coronary bypass surgery in the management of complications of percutaneous intervention;
l) strengths and weaknesses of mechanical versus lytic approach for patients with acute myocardial infarction;
m) the use of pharamocologic agents appropriate in the postintervention management of patients;
n) strengths and limitations of both noninvasive and invasive coronary evaluation during the recovery phase after acute myocardial infarction;
o) understanding the clinical utility and limitations of the treatment of valvular and structural heart disease; and
p) the assessment of plaque composition and response to intervention.