Heart failure post-MI
Myocardial viability with nitrates

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Clinical history

• 73-year old man.
• Previous myocardial infarction, heart failure.
• Submitted for myocardial viability assessment.
• Myocardial perfusion study with $^{99m}$Tc-sestamibi at rest and after nitrates.
Myocardial perfusion study
The perfusion result is consistent with:

a) Ischemia.
b) Transmural infarction.
c) Hibernation.
d) Attenuation.
The perfusion result is consistent with:

a) Ischemia.

b) Transmural infarction.

c) *Hibernation.*

d) Attenuation.

- The rest images show extensive perfusion defects at the postero-lateral and inferior walls, with significant improvement after nitrates.

- There is also a small anteroseptal area with the same findings.

- The result is consistent with the presence of viable, hibernated myocardium in most parts of the affected areas.
Myocardial viability can be assessed using:

a) Dobutamine echocardiography.
b) Cardiac SPECT or PET.
c) Magnetic resonance imaging.
d) All of the above.
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- Myocardial viability can be assessed with SPECT perfusion studies (alone or with nitrate stimulation), PET, dobutamine echocardiography, or magnetic resonance imaging.
Teaching points

• Myocardial viability studies are important in patients with heart failure and coronary heart disease in order to identify patients in whom either CABG or PTCA could result in functional recovery.

• Hibernated (viable) myocardium is thought to be the result of chronic ischemia and is generally associated with improvement after revascularization.

• Myocardial viability can be assessed with SPECT perfusion studies (alone or with nitrate stimulation), PET, dobutamine echocardiography, or magnetic resonance imaging, with comparable diagnostic yield.

