

Image interpretation and quantitative analysis in MPI

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Stress testing:

- Indications:
 - Detection of obstructive coronary artery disease (CAD)
 - Risk stratification in:
 - Post myocardial infarction
 - Chronic stable CAD
 - Before surgery
- Contra-indications for all types of stress
 - Recent myocardial infarction (<4 days)
 - Uncontrolled unstable angina
- Types:
 - Exercise Stress
 - Preparations:
 - B-blocking drugs should be stopped if possible
 - Contra-Indications:
 - ❖ Left bundle branch block (LBBB)
 - ❖ Pacing rhythm
 - Pharmacologic Stress
 - Adenosine:
 - Mechanisms:
 - Direct vasodilator of coronary smooth muscle
 - Half-life < 10 sec.
 - May induce ischemia through steal phenomenon
 - Preparations:
 - Caffeine containing foods: stop 12 hours before test
 - Theophylline containing drugs: stop 24 hours before test
 - Dipyridamole: stop 12 hours before test
 - Indications:
 - Unable to exercise
 - Left bundle branch block (LBBB)
 - Pacing rhythm
 - Contra-Indications:
 - Ongoing wheezing
 - Systolic Blood Pressure < 90 mmHg
 - Dipyridamole:
 - Mechanisms:
 - Is a prodrug, increases Adenosine by inhibiting
 - ❖ Adenosine uptake
 - ❖ Adenosine breakdown
 - Half-life 6 hours
 - Preparations:
 - Same as Adenosine

- Indications:
 - Same as Adenosine
- Contra-Indications:
 - Same as Adenosine
- Dobutamine:
- Mechanisms:
 - Increases myocardial oxygen requirements by
 - Inotropic action: force contractility
 - Chronotropic action: increase heart rate
- Preparations:
 - Same as exercise
- Indications:
 - Cannot exercise, have asthma or AV block

Image interpretation and artefacts:

Post-acquisition cine review as a critical quality control for detecting artefacts

Review the process of filtering, reconstruction and reorientation

Recognise gating artefacts

Recognise motion artefacts, patient upward creep, breast attenuation

Role of quantification in image interpretation

References

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