



REMARKS

1. Non-invasive haemodynamic tests

- 1.1 Include ankle-brachial index (ABI), toe-brachial index (TBI), segmental pressures or pulse volume recordings.
- 1.2 These are important tools for evaluating peripheral vascular disease.
- 1.3 With the presence of normal ABI both at rest and exercise with compressible vessels, atherosclerotic occlusive disease is effectively excluded as a cause of claudication / rest pain and obviates need of further arterial imaging.

2 US

- 2.1 Duplex US imaging can diagnose the location, degree and extent of stenosis down to the level of the knee.
- 2.2 It can also estimate the velocity of blood flow.
- 2.3 Needs skilled and experienced operators, and is a time consuming procedure.
- 2.4 Has limitations which include vessel visualization obscured by bowel gas (abdominal aorta and iliac arteries), dense calcifications and in the setting of multiple sequential lesions.

3. Computed Tomography Angiogram (CTA)

- 3.1 With improvements in multidetector CT (MDCT) technology, CTA has several advantages over digital subtraction angiogram (DSA), including shorter examination time, non-invasive nature, lower complication rates, direct visualization of mural plaque and calcium, visualization of collaterals and three-dimensional (3D) volumetric display and analysis.
- 3.2 CTA has limitations which include difficulties in grading severity of vessel stenosis in presence of dense calcium; suboptimal assessment of calf vessels due to timing issues. Streak artefacts from metallic implants also limit the role of CTA in stent surveillance.
- 3.3 Use of iodinated intravenous (IV) contrast and ionizing radiation are concerns.

4. Magnetic Resonance Angiogram (MRA)

- 4.1 Non-invasive with no ionizing radiation.
- 4.2 Majority of MRI employs contrast-enhanced MRA sequences.
- 4.3 Non-contrast MRI sequences can be considered for patients with renal insufficiency.
- 4.4 Limitations of MRI which affect image quality include longer scanning time (may be more prone to motion artefacts); unreliable visualization of lesions with high flow and turbulence; suboptimal assessment of stent lumen or lumen close to prosthesis.

5. Catheter angiography

5.1 DSA is considered the gold standard for imaging of peripheral vascular disease.

5.2 Can allow for intervention such as balloon angioplasty or stenting.

5.3 It is invasive, needs iodinated IV contrast, requires multiple projections and involves ionizing radiation.

5.4 It is now mainly indicated if intervention is planned.

6. Choices of non-invasive investigations (duplex US, CTA, MRA) depend on local expertise and experience.

REFERENCES

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