How advanced imaging tools facilitate peripheral occlusion recanalization?

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Disclosure slide

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☑️ I have the following potential conflicts of interest to report:

☒ Consulting: Medtronic, Spectranetics, Biotronik, Abbott, Bard
   ivascular, Bentley, Cook, GE Healthcare
☑️ Employment in industry
☑️ Stockholder of a healthcare company
☑️ Owner of a healthcare company
☑️ Other(s)

☒ I do not have any potential conflict of interest
Hybrid Room: Discovery IGS 740 (GE Healthcare)
Successful in the lower limb...

✓ Preoperative CT angiography (120kV; 51mAS acquisition; 80 ml dual bolus contrast, 5ml/sec; 1mm contiguous slice reconstruction)

✓ Precise planning of procedure with Vessel ASSIST

✓ Accurate guiding during procedure with Vessel ASSIST

✓ Assess procedure

To increase technical success rates

To reduce complications

To reduce contrast/radiation
Automatic bone removal

Automatic extraction of vascular anatomy & vessel centerline (Real Time tracking)
In occlusion, bridge tool enables lumen tracking.

Smooth centerline editing/fine-tuning manually by rotating dataset around Centerline = guiding through occlusion
Accurate lesion length/diameter measurements for pre-op device length/diameter selections
PRECISE, INTUITIVE PLANNING ON CTA WITH VESSEL ASSIST

Automatic calcification segmentation
(helpful during overlay registration)

Adding markers/circles helpful for
- safe access
- avoiding geographical misses
- defining re-entry zones

Saving 3D volumes + virtual track + markers for perop fusion
GUIDE YOUR PROCEDURE WITH VESSEL ASSIST

Vessel ASSIST offers a Bi-view registration mode:

3D model registration with 2 simultaneous displayed, different angled (Accuracy Score), fluoroscopic images

2D-3D Registration at tablesde by translating/rotating on correct landmarks (Calcium, bone, previous stents...)

Move the gantry to an appropriate angulation. Acquire a sequence for registration.
GUIDE YOUR PROCEDURE WITH VESSEL ASSIST

Preop 3D prepared segmentations work synchronously with live intra-operative images

3D markers + vessel overlay to guide perfectly during access to SFA stump
GUIDE YOUR PROCEDURE WITH VESSEL ASSIST

Preop 3D prepared segmentations work synchronously with live intra-operative images

3D markers + vessel overlay guide perfectly during access to SFA stump
GUIDE YOUR PROCEDURE WITH VESSEL ASSIST
GUIDE YOUR PROCEDURE WITH VESSEL ASSIST

Virtual markers help avoid geographical miss therefore reducing risk of restenosis.

Table side QVA helps defining indications, sizing, residual stenosis...
ASSESS YOUR PROCEDURE

Automatic BREEZE mode helps judging your final result with mask acquisition before bolus

Final contrast & DAP interpretation/benchmarking with real-time dose mapping

Total Dose Area Product (Gy.cm²) : 28.9 Gy.cm²
Median DAP in the literature for CAS (Gy.cm²) : 46 Gy.cm²
REPADT-study

• Physician initiated, prospective, comparative, dual center study to evaluate 60 SFA-CTO procedures, 30 with Vessel ASSIST (GE Healthcare), 30 without in 2 experienced high volume centers:
REPADT-study

• Primary endpoints:
  - technical success rate (%)
  - contrast dose reduction (ml)
  - radiation reduction (DAP)

• Secondary endpoints:
  - MAE rate
  - predictability in ordering/choosing correct implants
CONCLUSION

• Multimodality advanced imaging like Discovery IGS 740 with software programs like Vessel ASSIST is nowadays essential part of the endovascular armamentarium to treat complex peripheral arterial disease.

• A fully integrated workflow between planning & intra-operative guidance saves time, increases confidence & efficacy, decreases complications, radiation & contrast use.

• Our Case-based experience will be evaluated by the prospective, comparative clinical REPADT-study in 60 patients.
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