Image Fusion With MRV For 3D Guidance Of Deep Venous Interventions

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Disclosures

- None

Fusion Image Guidance

The technology follows two principles:
- To co-register and fuse pre-acquired image datasets (e.g. CTA or MRA) to another dynamic imaging modality, commonly fluoroscopy
- To overlay real-time catheter and guidewire movements to the pre-acquired background dataset

Pre-procedural imaging

- CT venography adequately images deep venous system
  - Radiation exposure and iodinated contrast
- MR venography accurately images deep venous system
  - Gadolinium / blood pool agents
  - Iodinated and gadolinium contrast media may be contraindicated
    - Renal impairment (CIN and NSF)
    - Contrast allergy

Non-CE MRV technique

- Non-contrast-enhanced ECG gated Magnetic Resonance Venography
- TRANCE (triggered angiography non-contrast-enhanced) MRV
  - T2-weighted 3D-TSE, ECG triggered, voxel size 0.9x0.9x2mm

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  - T2-weighted 3D-TSE, ECG triggered, voxel size 0.9x0.9x2mm
  - Only visualization of veins, no additional arteries

Non-CE MR venography

Low-dose Xper CT

Fusion of images

Intervention & Image guidance
### Intervention & Image guidance

- Duplex ultrasound post stenting and next day

### Control & follow-up

- Follow-up at 2W, 6W, 3M, 6M and annually

### Summary & Conclusions

- **3D fusion guidance**
  - Feasible in patients with limited deep venous obstructions

- **Non-contrast enhanced MR venography**
  - Valuable imaging alternative in selective patients

- **Further research & development**
  - ↓ contrast & radiation exposure

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