Silent MRA

Silent Scan (GE Healthcare, Milwaukee, Wisconsin) MRA (Silent MRA) is a non-contrast-enhanced MRA technique that uses an ultrashort TE (UTE) combined with arterial spin labeling, which is used as a preparation pulse to visualize blood flow. Subsequent data acquisition is based on 3D radial sampling.

Because UTE decreases the susceptibility artifacts associated with metallic devices, Silent MRA could potentially reduce the artifacts associated with braided, high-metal-coverage stents.

Silent MRA can be useful to evaluate aneurysms treated with stent-assisted coil embolization, regardless of the aneurysm location and type of stent used [1].

Thirty-five consecutive patients with AVMs of the brain were included. Quantitative-analyses were performed by measuring both signal-to-noise ratio and contrast-to-noise ratio of the nidus. Qualitative analysis (scores 1-4) was performed by evaluating depictions of feeding arteries and draining veins independently by 2 reviewers.

Both signal-to-noise ratio and contrast-to-noise ratio in TOF-MRA were significantly higher than those in silent MRA. For both feeders and drainers, scores were significantly higher in silent MRA than in TOF-MRA for both reviewers. Interrater agreement was higher in silent MRA than in TOF-MRA.

Silent MRA visualized feeders and drainers in AVMs significantly better than did TOF-MRA. Interrater agreement was also better in silent MRA [2].

1)
Kim YN, Choi JW, Lim YC, Song J, Park JH, Jung WS. Usefulness of Silent MRA for Evaluation of Aneurysm after Stent-Assisted Coil Embolization. Korean J Radiol. 2022 Jan 4. doi: 10.3348/kjr.2021.0332. Epub ahead of print. PMID: 35029075.
2)
Tomura N, Saginoya T, Kokubun M, Horiuchi K, Watanabe Z. Comparison of Time-of-Flight-Magnetic Resonance Angiography From Silent Scan Magnetic Resonance Angiography in Depiction of Arteriovenous Malformation of the Brain. J Comput Assist Tomogr. 2019 Nov 13. doi: 10.1097/RCT.0000000000000935. [Epub ahead of print] PubMed PMID: 31738210.