

Efficacy

How do albumin-binding blood pool contrast agents work?

Due to their reversible binding to human serum albumin, blood pool contrast agents such as gadofosveset, combine the advantages of a first-pass gadolinium agent, allowing dynamic imaging after bolus injection, and the advantages of a steady-state agent, allowing ultra high-resolution imaging.

Thus, the diagnostic efficacy of this type of blood pool contrast agents is determined by:

- the paramagnetic effect of the lanthanide gadolinium (Gd),
- the reversible binding to human serum albumin.

What is the efficacy of this type of contrast agents?

In clinical studies gadofosveset has shown excellent efficacy and approaches the effectiveness of conventional angiography without the invasiveness and radiation exposure of conventional methods. This efficacy was demonstrated in various clinical studies with rigorous evaluation.

- Gadofosveset-enhanced MRA showed good results in phase II and III clinical trials, in which it was compared with unenhanced MRA and X-Ray angiography as the clinical standards.
- Gadofosveset-enhanced MRA exhibited an accuracy of 82% in the diagnosis of hemodynamically significant (= 50%) stenosis in a phase II multi-centre trial.
- Phase III blinded offsite reads demonstrated sensitivity, specificity and accuracy levels that underscored the potential of gadofosveset in the various indications.
- The number of uninterpretable MRA scans obtained with gadofosveset was significantly lower than that obtained with un-enhanced MRA (2D TOF).
- The number of uninterpretable vessels for gadofosveset-enhanced MRA was even lower than for DSA in all trials.

How do blood pool contrast agents improve patient management and therapeutic decisions?

Treatment decisions for patients with vascular disease usually combine diagnostic results with clinical findings in order to plan an adequate therapeutic procedure. False-negative and false-positive results of (frequently unenhanced) MRA procedures are detected through contradictory clinical findings and then followed by X-ray angiography to achieve an accurate diagnosis.

As a result, more patients undergo an X-ray angiography procedure based on TOF-MRA compared to the more efficient MRA with blood pool contrast agents.

Thus, the use of MRA with blood pool contrast agents could substantially reduce the number of patients who would be exposed to the known risks and costs of X-ray-angiography.