

INTRA-INDIVIDUAL COMPARISON BETWEEN GADOPICLENOL (0.05 MMOL/KG)- AND GADOBUTROL (0.1 MMOL/KG)-ENHANCED MRI IN TERMS OF BRAIN METASTASES VISUALIZATION

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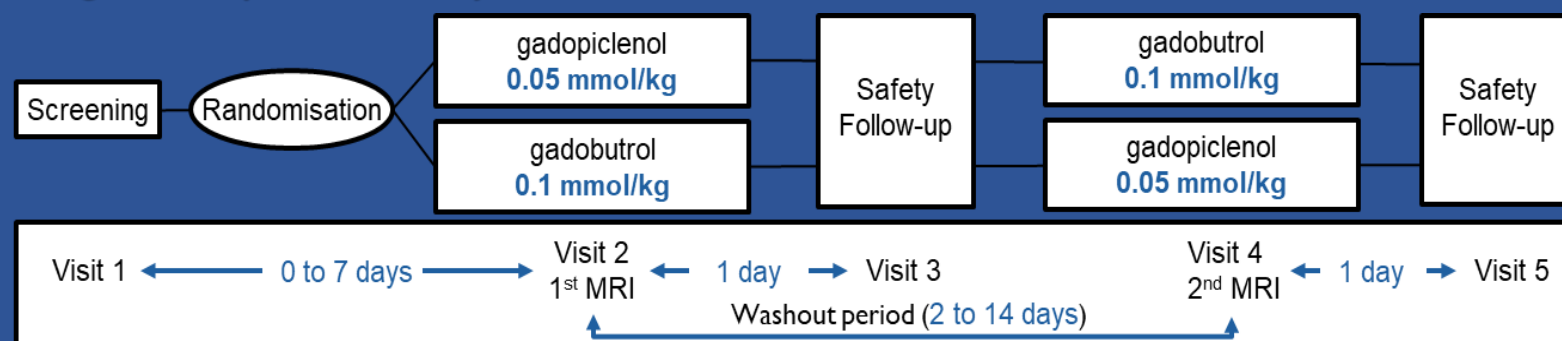
BACKGROUND

- Gadopichol (Elucirem®, Guerbet) is a non-ionic macrocyclic gadolinium-based contrast agent (GBCA) for MRI, approved by the FDA and the EMA.
- Gadopichol has a high kinetic stability and r1/r2 relaxivity 2-3 times higher than that of currently available GBCAs at 1.5T and 3T.¹
- In MRI of the CNS (phase IIb, III studies), gadopichol at 0.05 mmol/kg :
 - Was not inferior to gadobutrol at 0.1 mmol/kg, in terms of lesion visualization (border delineation, internal morphology, and contrast enhancement).²
 - Showed similar contrast to noise ratio (CNR) as compared to gadobenate dimeglumine at 0.1 mmol/kg.³

METHODS

Post-hoc analysis of the PICTURE (gadoPIClenol for cenTral nervoUs system magnetic REsonance) study: double-blind, randomized, comparative, multicenter, cross-over, phase III study, including 256 patients with highly suspicious CNS lesions

Design of the phase III study:

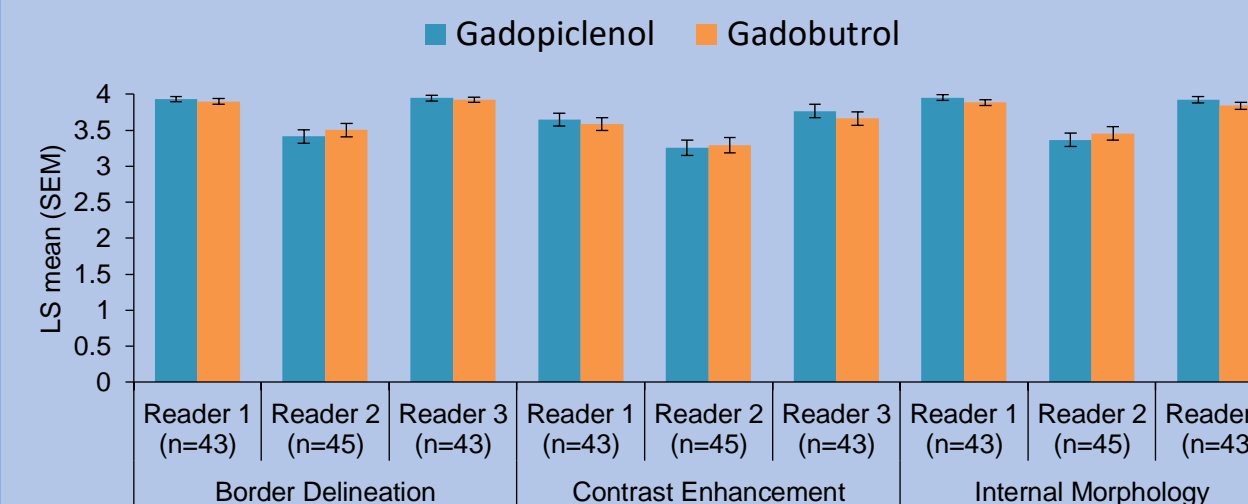


Aim of the post-hoc analysis: To compare lesion visualization between contrast-enhanced MRI with gadopichol at 0.05 mmol/kg and gadobutrol at 0.1 mmol/kg in the subpopulation of patients with brain metastases (N= 46 patients):

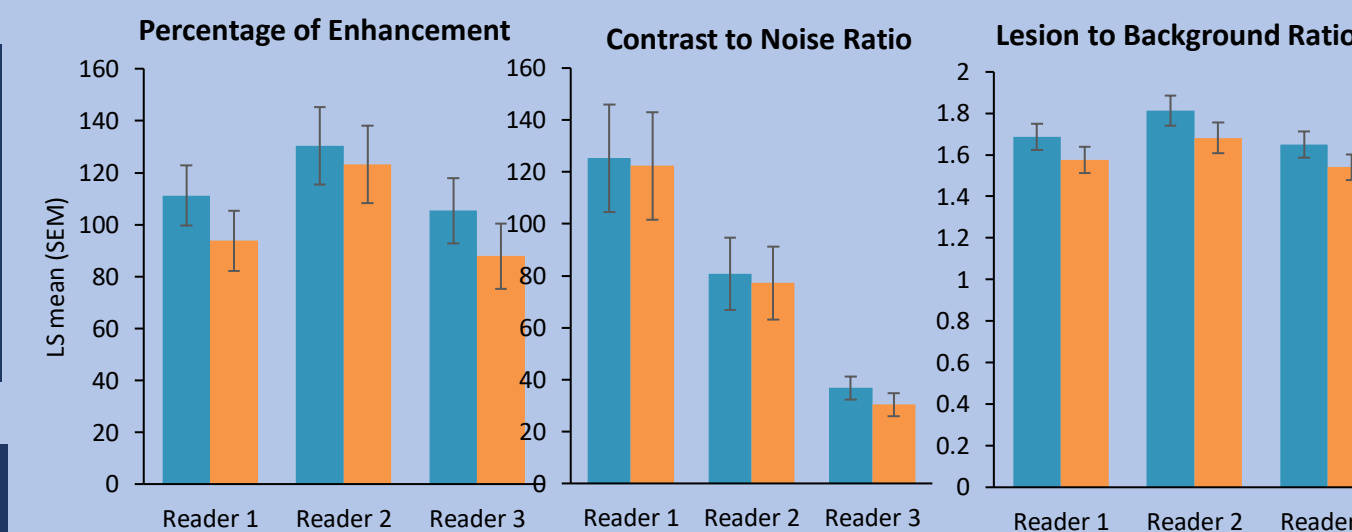
- Lesion visualization parameters (border delineation, internal morphology, contrast enhancement) were assessed on a 4-point scale by 3 independent blinded readers on up to 3 most representative lesions.
- Percentage of enhancement (E%), lesion to background ratio (LBR), and contrast to noise ratio (CNR) were measured on these lesions
- Overall diagnostic preference was assessed in a global matched-pairs fashion by 3 additional blinded readers

RESULTS

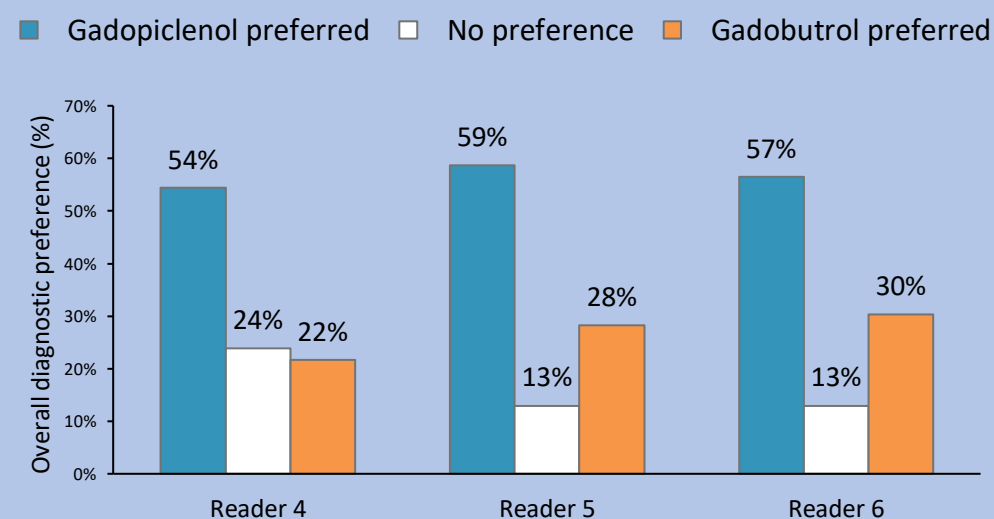
- Gadopichol at 0.05 mmol/kg is non-inferior to gadobutrol at 0.1 mmol/kg in terms of 3 visualization parameters for all 3 readers
(Lower limit of the 95% CI of the difference in mean scores above the non-inferiority margin of -0.35, p<0.0001)



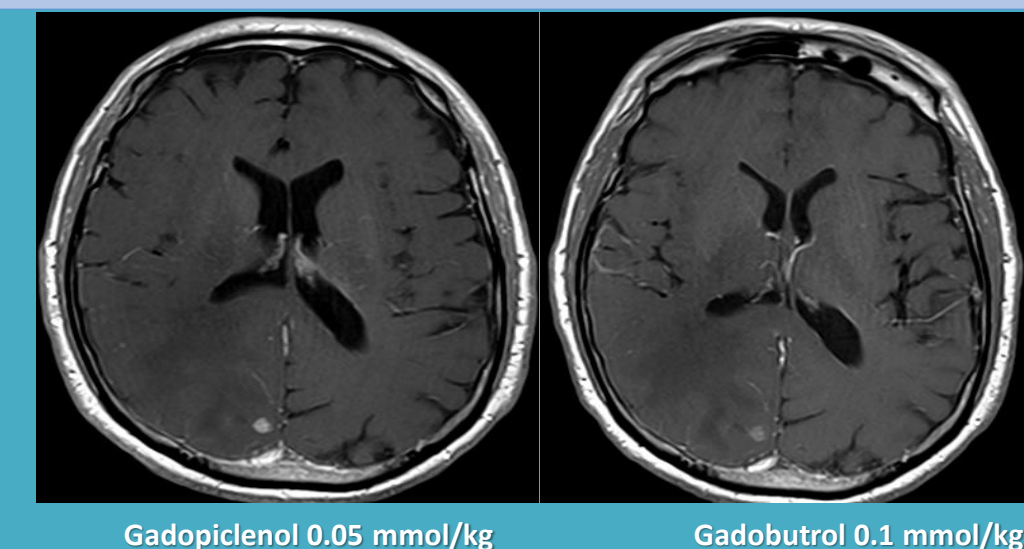
- No significant difference in CNR between the two GBCAs.
- Higher E% observed with gadopichol for 2 out of 3 readers (p≤0.0097).
- Higher LBR observed with gadopichol for all 3 readers (p≤0.0036).



- In the majority of evaluations, readers preferred images with gadopichol at 0.05 mmol/kg to images with gadobutrol at 0.1 mmol/kg.



Axial 3D T1-weighted GRE MRI scans of a 65-year old male patient with brain metastasis



CONCLUSIONS

- MRI with gadopichol at 0.05 mmol/kg is non-inferior to gadobutrol at 0.1 mmol/kg for visualization of brain metastases.
- The high relaxivity of gadopichol holds the potential to improve its risk-benefit profile by enabling a reduction in the administered gadolinium dose, while maintaining optimal imaging performance for brain metastases.

REFERENCES

- 1- Robic C et al. Invest Radiol. 2019 Aug;54(8):475-484
- 2- Loevner LA et al. Invest Radiol. 2023 May 1;58(5):307-313
- 3- Bendszus M et al. Invest Radiol. 2020 Mar;55(3):129-13