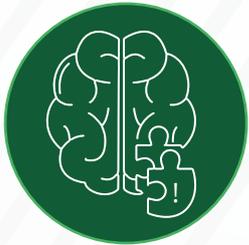


Detection and Management of Amyloid-Related Imaging Abnormalities During Alzheimer's Disease Treatment

A guide to improving the quality of life in patients with amyloid-related imaging abnormalities



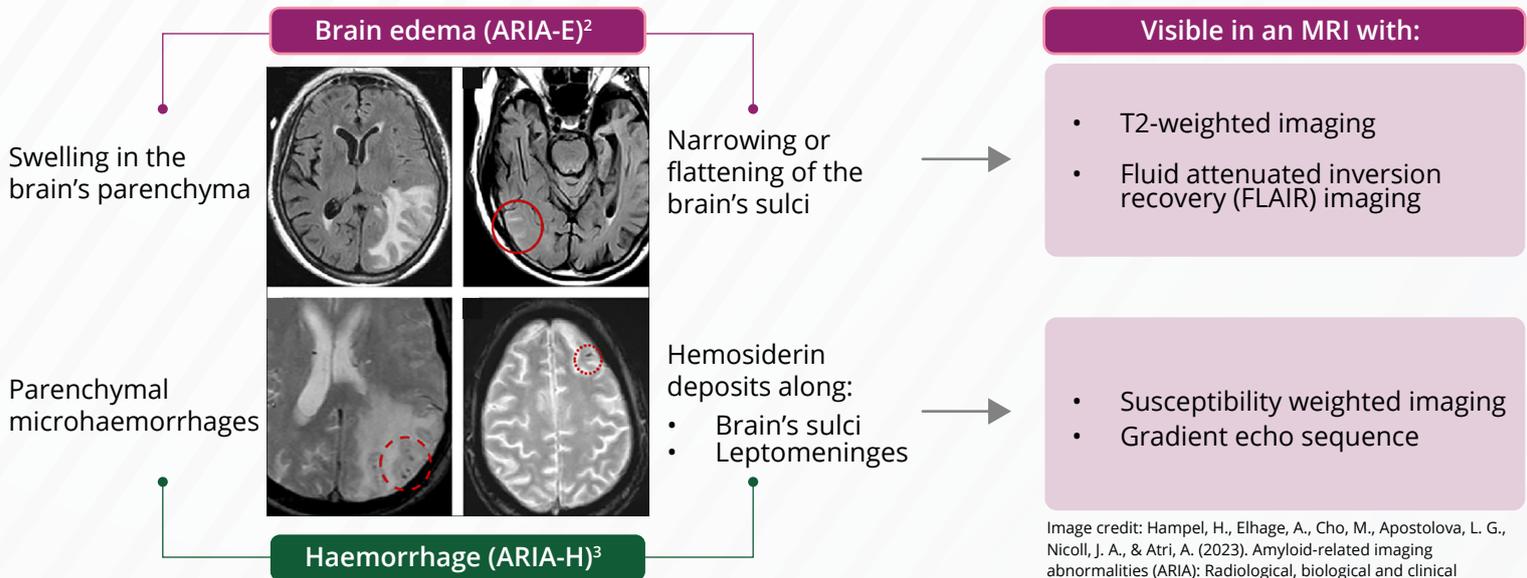
Anti-amyloid monoclonal antibodies are immunotherapeutics approved for the treatment of early-stage Alzheimer's disease (AD)



Treatment with anti-amyloid monoclonal antibodies can¹:

- Slow down disease progression
- Cause side effects known as amyloid-related imaging abnormalities (ARIA)

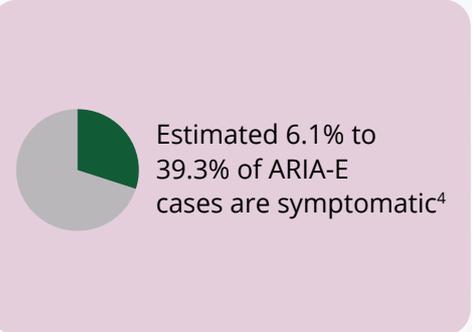
ARIAs, as identified by magnetic resonance imaging (MRI), are of two major types^{1,2}



Risk factors for ARIA



- Apolipoprotein E (ApoE) ε4 allele carrier status
- History of cerebral microhaemorrhages
- Antithrombotic use
- Age
- History of stroke
- Hypertension



Most common ARIA-E symptoms



Headache



Confusion



Vomiting

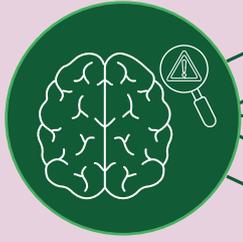


Visual disturbance



Gait disturbance

Challenges in clinical detection of ARIA⁴



- Asymptomatic in most cases
- Similarity of MRI findings in cerebral amyloid angiopathy (CAA) and ARIA-H
- Similarity of MRI findings in CAA-related inflammation and ARIA-E
- ARIA-H lesions are difficult to spot due to their small size
- ARIA-H lesions resemble other brain microbleeds

Clinical course of ARIA²



ARIA appears during the early course of treatment and tends to decrease with increasing drug exposure



Initial loss of vessel integrity, with reconstitution of vessel wall and resumption of perivascular drainage over continued treatment



ARIA-E: transient in nature with treatment span around 4–12 weeks

Standard MRI protocol for ARIA detection⁴

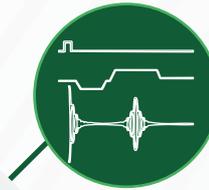
Scanner field strength

- 1.5 T (minimum)
- 3 T (preferred)



Scan type

- 2D T2* gradient recalled echo or susceptibility weighted imaging (for ARIA-H)
- T2 FLAIR (for ARIA-E)



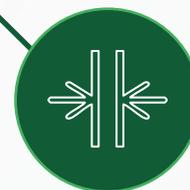
Echo time

20 ms or higher



Slice thickness

5 mm or less



Computer-aided diagnosis (CAD) can improve ARIA detection⁴



Quantitative CAD

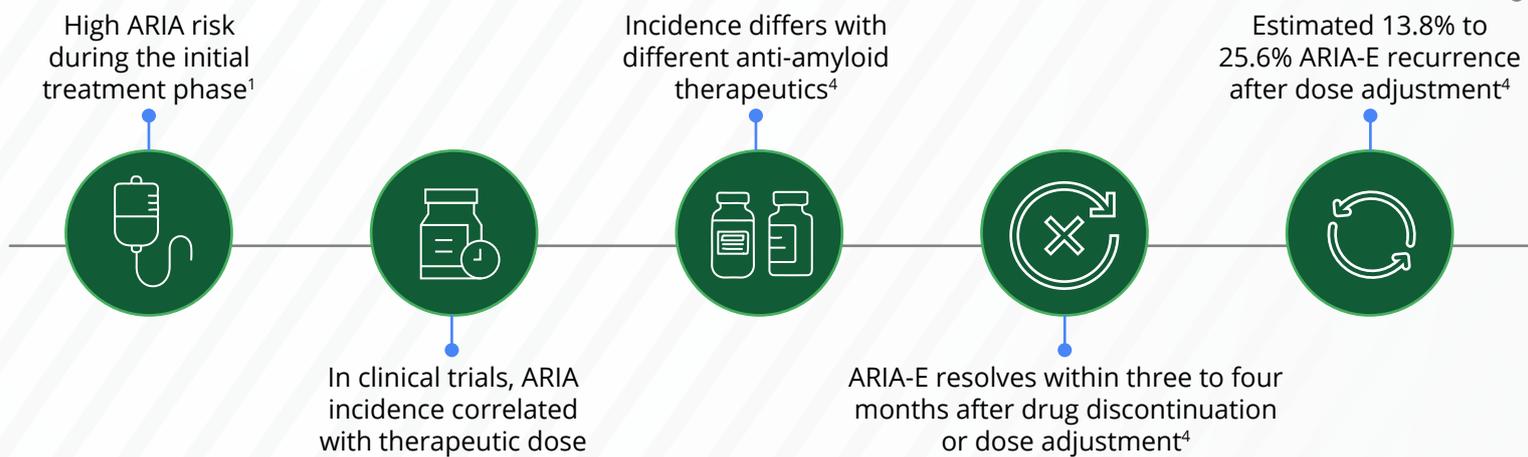


Algorithmic image differentiation



Evaluation by the clinician

Association between anti-amyloid therapy and ARIA



ARIA incidence as reported by clinical trials*

Drug	ARIA-E incidence	ARIA-H incidence	Study group	Clinical trial
Aducanumab ³	35.2%	19.0%	Japanese	EMERGE and ENGAGE
Donanemab ⁵	26.7%	22.2%	Japanese	TRAILBLAZER-ALZ 2
Lecanemab ³	6.2%	14.4%	Asian	Clarity AD
Solanezumab ⁶	1.1%	9.1%	Not mentioned	EXPEDITION 1 and EXPEDITION 2

*Not a comparison of drugs (studies may have different inclusion criteria, baseline factors, drug dosage, regimen, etc.)



ApoE4 may be less frequent in some Asian populations, like Japanese, but ApoE4 has a stronger association with Alzheimer's risk in these groups⁷

Considerations for anti-amyloid treatment delivery

Patient eligibility

Only a minority of individuals diagnosed with early-stage AD are eligible based on⁸:



Cognitive score



Frailty score



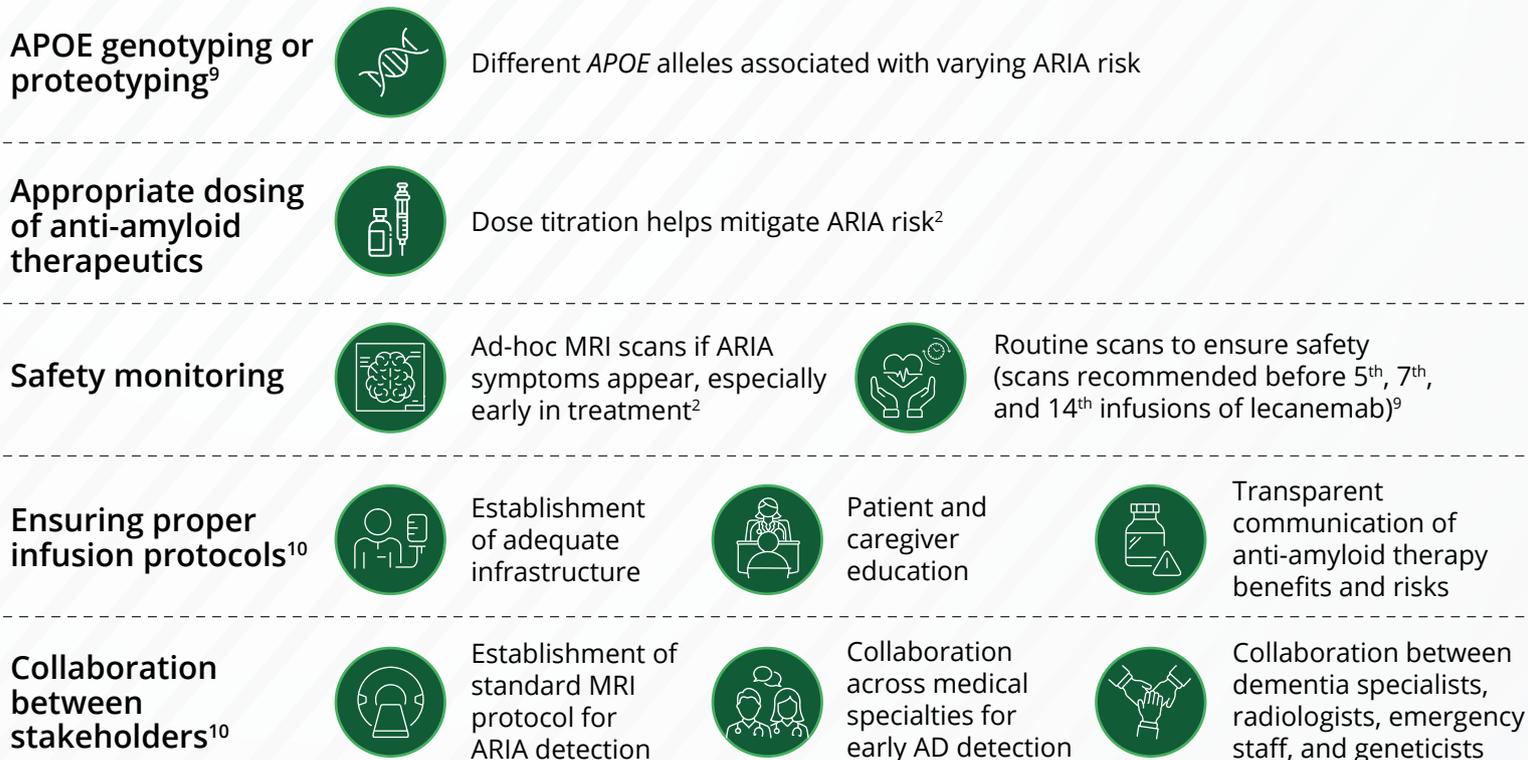
MRI imaging results



Anticoagulant use

Clinicians should choose the medication based on its efficacy and safety, as well as patient profile

Strategies for clinical management of ARIA



Role of healthcare providers in the management of ARIA¹⁰



Neuroradiologists

Trained to detect ARIA on MRI scans

Dementia specialists

Administration of anti-amyloid therapies and monitoring treatment response and safety
Knowledge of efficacy and safety profiles of anti-amyloid therapies

General neurologists, geriatricians, and psychiatrists

Trained to perform clinical and diagnostic assessments to reduce the burden on dementia specialists

Key message

- ✓ Broader adoption of patient screening and standardized protocols for ARIA detection and management could significantly improve the quality of care for patients with AD during the early treatment phase

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