Evaluation of CBF after indirect revascularization in pediatric patients of moyamoya disease using multiphase selective ASL MRI

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Aim of the study

- To evaluate CBF using multiphase selective arterial spin labeling (ASL) MRI in patients of pediatric moyamoya disease after indirect revascularization surgery.
Multiphase selective ASL MRI

- Phillips 3.0T scanner
- Selective labeling of ECA
  - Labeling slab thickness: 40mm
- ASL scan
  - TR/TE: 3000/24ms, Flip angle: 30 degrees
  - 5 slices with different labeling delay times (TI, 250-2500ms), thickness/gap: 10/1mm
  - Subtracted labeled image from non-labeled image
Case illustration

- 8-year-old boy
- Presented with left side TIA
- Bilateral EDAS and bifrontal EGS
Multiphase selective ASL MRI

<table>
<thead>
<tr>
<th>Labeling time</th>
<th>250ms</th>
<th>500</th>
<th>750</th>
<th>1000</th>
<th>1250</th>
<th>1500</th>
</tr>
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[Image of MRI scans with labeling times 250ms, 500ms, 750ms, 1000ms, 1250ms, and 1500ms]
Multiphase selective ASL MRI

250-1750ms
Summary of the cases

- 17 hemispheres in 11 patients
  - 1 boy, 10 girls
  - 6-14 years old
  - Bifrontal EGS added in 4 cases

- ECA to MCA territory signal: all cases

- ECA to ACA territory signal: 5/11 cases
Multiphase selective ASL MRI

- **Non-invasive and repeatable technique** to evaluate CBF after indirect bypass surgery

- **Alternative** to cerebral angiography
  - Artery selective
  - No injection

- **Quantitation was not performed**