Arterial spin labeling perfusion MRI: Inter-vendor reproducibility and clinical applicability
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Statements pertaining to the thesis:

Stellingen behorende bij het proefschrift:

Arterial spin labeling perfusion MRI - Inter-vendor reproducibility & clinical applicability

1. On a voxel level, CBF measurements from different vendors are only comparable when the same readout modules are used (Chapters 2-5).

2. Differences between 2D and 3D ASL sequences can be mainly explained by differences in transit time sensitivity, point spread function and efficiency of background suppression (Chapters 2-4).

3. Differences in ASL sequence parameters should be avoided, since even slight differences in ASL sequence parameters can have a large effect upon the reproducibility (Chapter 5).

4. Uncontaminated white matter perfusion signal can be detected with ASL, if tissue masks are carefully eroded to minimize gray matter contamination (Chapter 6).

5. The statistical power of ASL may be increased by moderate vascular crushing, suggesting that removing macro-vascular perfusion variability can be more important than holding on to sufficient signal-to-noise ratio (Chapter 7).

6. Information from transit time measurements may carry important diagnostic value and simultaneous measurements of CBF and transit time should be carried out when possible (Chapters 7-8).

7. White matter lesion volume is correlated with white matter lesion CBF but not with CBF within the normal appearing white matter or gray matter in elderly with hypertension, suggesting that white matter lesion development is the result of local rather than systemic perfusion disturbances (Chapter 8).

8. WM CBF is correlated with clinically relevant hematological parameters in children with sickle cell disease, alluding to the possible development of ASL-based CBF measurements as a non-invasive biomarker in this population (Chapter 9).

9. Good coffee decreases both perfusion and confusion (opinion).

10. Similarities between white matter lesion characteristics in sickle cell disease and small vessel disease warrant combined research efforts between neuroradiologists, pediatric hematologists and neurologists (opinion).

11. White matter lesions are simply a consequence of evolution: regions that are least important for brain function survival are perfused last (but also least) (opinion).