Stellingen

behorende bij het proefschrift

Quantitative Diffusion-Weighted Imaging in Breast and Liver Tissue

1. For further development of clinical diagnostic applications of quantitative diffusion-weighted imaging (DWI) the intravoxel incoherent motion (IVIM) model must be applied.

2. Quantitative DWI cannot replace dynamic contrast-enhanced (DCE-) MRI for exclusion of malignancies

3. The wide variety of b-value combinations and different measurement protocols excludes the use of the apparent diffusion coefficient (ADC) as an imaging biomarker.

4. A minimum of 6 b-values is required to obtain an optimal fit of the diffusion signal and to reliably measure microperfusion effects.

5. Regional variations in hepatic ADC values reflect differences in microperfusion rather than true molecular diffusion. (chapter 2)

6. Increased ADCs in the left liver lobe are mainly caused by extensive microperfusion contamination rather than by cardiac or respiratory motion. (chapter 2)

7. Correct assessment of liver diffusion is only possible if hepatic fat fractions are determined prior to quantitative DWI. (chapter 4)

8. IVIM modeling proofs that ADCs decrease in Fontan livers due to significantly lower microperfusion rather than decreased diffusion. (chapter 5)

9. Averaged breast ADC values obtained by observer chosen ROIs only reflect a minor part of the tissue characteristics of a lesion. (chapter 7)

10. Semi-automated breast lesion evaluation is reader independent and yields significantly higher specificity for IVIM compared to the ADC (chapter 7).

11. Quantitative DWI implemented after DCE-MRI as problem solver in the work-up of BIRADS 3 and 4 breast lesions reduces the number of invasive biopsies (chapter 8)

12. God used beautiful mathematics in creating the world. (P. Dirac)

13. Knowledge is never used up. It increases by diffusion and grows by dispersion. (D.J. Boorstin)

14. Oan de ein fan de fûke fangt men de fisk

Hildebrand Dijkstra, 2016.