

3097

## Development of Advanced Algorithm in Non-Linear Curve Fitting for Dynamic Susceptibility Contrast in Human Brain

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**Purpose:** To develop an advanced non-linear curve fitting (NLCF) algorithm for performing dynamic susceptibility contrast study of the brain.

**Materials and Methods:** The first pass effects give rise to spuriously high estimates of K<sub>trans</sub> for the voxels that represent the large vascular components. An explicit threshold value was used to reject voxels.

**Results and Conclusion:** The blood perfusion and volume estimation were accurately evaluated in the T2\*-weighted dynamic contrast enhanced (DCE)-MR images. From each of the recalculated parameters, a perfusion weighted image was outlined by using the modified non-linear curve fitting algorithm. The present study demonstrated an improvement of an estimation of the kinetic parameters from the dynamic contrast-enhanced (DCE) T2\*-weighted magnetic resonance imaging data with using contrast agents.

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