

## Poster PE-14

### A Reconstruction Algorithm of MR Images from Multi-Channel Data Acquired on a Radial k-Space Trajectory for Fast Imaging

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#### 목적 :

To develop a novel approach for reconstruction of multi channel data which has only magnitude information. The data is acquired with 4 channel phase array coil on a radial k-space trajectory for reduction in acquisition time.

#### 대상 및 방법 :

The MR images were acquired with 4 channel phased-array coil on a radial k-space trajectory. The number of views used in radial acquisition was fewer than that in a conventional imaging method for reduction in acquisition time. The reduced number of views can be compensated by the multi channel data. We used only magnitude information in reconstruction to reduce the motion artifact. To achieve this goal, we developed a reconstruction method as follows:

1. Make matrix equation to represent the relationship with projection and Cartesian grid data. If the matrix size of MR images is  $N \times N$ , then the number of unknown variables and equations are  $N^2$ .
2. To suppress the noise amplification in solving the matrix equation, the regularization method was used.
3. To apply the method to large matrix size, we used iterative approach in solving the matrix equation
4. The missing equation by reducing the number of views was replaced by the multi channel data.

#### 결과 :

The reconstructed images using the proposed method were compared with the images which are reconstructed using the Radon transform. Both results are almost same.

#### 결론 :

This type of approach are effectively deployed in reconstruction of radial data which has reduced number of views acquired with multi channel coil such as phased-array coil. And the method could successfully reconstruct the images using only magnitude information.

#### 감사의글 :

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