

Summary

Effects of Subset Number on the Images Reconstructed by OSEM Method —Relationship between Artifact Generation and Projection Numbers Distributed in One Subset—

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The subset number in the OSEM method is an important factor because an excellent contrast can be maintained by setting it to high values even if the numbers of iteration are set few, and it contributes to shortening the time required for reconstruction. However, in the setting of subset number neither definite guideline nor the influence on artifact generation has been shown except it is confined to the divisors of projection number.

In this study, a basic examination using phantom was performed on the relations of set values of subset number with the artifact generation and the number of

collecting projections. The artifact generation and the decrease in uniformity were prominent when the number of projections distributed in one subset ranged 2 to 5. On the other hand, no remarkable influence was observed on the linearity and the contrast of image. These results suggest that the optimum number of projections distributed in one subset are from 6 to 10 and setting to these numbers will contribute to suppress the generation of artifact and to maintain the uniformity, contrast, and linearity in SPECT images.

Key words: Subset number, OSEM method, Artifact.