

Increasing the Apparent Time Resolution of Tc-99m Diethylenetriamine Pentaacetic Acid Galactosyl Human Serum Albumin Dynamic SPECT by Use of an 180-Degree Interpolation Method

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Abstract : In general, dynamic SPECT data acquisition needs a few minutes for one rotation. Thus, the time-activity curve (TAC) derived from the dynamic SPECT is relatively coarse. In order to effectively shorten the interval, between data points, we adopted a 180-degree interpolation method. This method is already used for reconstruction of the X-ray CT data. In this study, we applied this 180-degree interpolation method to SPECT and investigated its effectiveness. To briefly describe the 180-degree interpolation method: the 180-degree data in the second half of one rotation are combined with the 180-degree data in the first half of the next rotation to generate a 360-degree data set appropriate for the time halfway between the first and second rotations. In both a phantom and a patient study, the data points from the interpolated images fell in good agreement with the data points tracking the accumulation of 99mTc activity over time for appropriate region of interest. We conclude that data derived from interpolated images improves the apparent time resolution of dynamic SPECT.

Keywords : dynamic SPECT, time resolution, 180-degree interpolation method, 99mTc-GSA.

Conference Title : ICBMP 2015 : International Conference on Biophysics and Medical Physics

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015