Julie Lindegaard Vestphael og Mie Ringmann Andersen
Københavns Professionshøjskole
Bachelorprojekt: ”Optimering af en 18F-FE-PE21 scanning samt undersøgelse af tidspunktet for den optimale specifikke bindingsratio for 18F-FE-PE21”

Abstract

Background

Parkinson’s disease is an idiopathic neurological disease, with symptoms as bradykinesia, rigidity and tremor. Tremor worsens by psychological stress, which can occur in context with a PET/CT imaging, that can have an impact on the quality of the examination.

Aim

The aim of this study consists of two parts, part 1 was to investigate whether it is possible to optimize the scanning time of a 18F-FE-PE2I PET/CT-scanning from the current optimal scan time of 10 minutes, without affecting the diagnostic quality. And a part 2 with inspiration from a previous study by Sonni et al.9, where the intention is to find the optimal time for the specific binding ratio of 18F-FE-PE2I.

Materials and methods

The study is a retrospective study where 20 previously scanned patients were selected according to specific criteria for part 1, and 8 patients for part 2. In part 1, all 20 patients’ original image was reconstructed after four time intervals respectively; 3, 5, 7, 10 minutes and then the quality assessed by the department’s chief physician and prepared statistical calculations. In part 2, all 8 patients’ original images were also reconstructed, though with different time intervals than part 1.

Results

The results in this study showed that it is statistically possible to optimize the scanning time to 2,5 minutes without having a clinical relevance. The quality-rated images showed that it is probably possible to optimize the scanning time with 1,5 minutes from the original time of 10 minutes. The results from part 2 of the project demonstrated an optimal SBR achieved at 33 minutes.

Conclusion

This study indicates that it is probably possible to optimized the scanning time as long as the optimal SBR are achieved.