

学位請求論文の内容の要旨

領 域	放射線技術科学領域	分 野	
氏 名	勘 崎 貴 雄		
(論文題目) 新しい線条体放射濃度結合比計算ソフトウェアを使用した N- ω -fluoropropyl-2 β -carbomethoxy-3 β -(4-[123I] iodophenyl) nortropane SPECT によるパーキンソン病の評価 (Evaluation of N- ω -fluoropropyl-2 β -carbomethoxy-3 β -(4-[123I] iodophenyl) nortropane SPECT using the new specific binding ratio calculation software of Parkinson's disease)			
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<p>[Purpose] N-ω-fluoropropyl-2β-carbomethoxy-3β-(4-[123I] iodophenyl) nortropane single photon emission computed tomography (Ioflupane-SPECT) has been used to assess dopamine transporter (DAT) loss in Parkinson's disease (PD). The specific binding ratio (SBR), a quantitative parameter of DAT density in the striatum, may be affected by differences in age, sex, and SPECT system. Therefore, Matsuda has established a multicenter Japanese large-scale database of Ioflupane-SPECT scans from different SPECT scanners in healthy controls across a wide age range and with balanced sex representation. However, the diagnostic accuracy of this Japanese normal database (NDB) by SBR has not been evaluated. The purpose of this study was to evaluate the utility of Ioflupane-SPECT using the Japanese NDB in the diagnosis of Parkinson's disease.</p> <p>[Materials and methods] To standardize the quantitative outcome measures of DAT density obtained with different SPECT systems, striatal phantoms filled with striatal to background materials at ratios between 8:1 and 1:1 were measured using a gamma camera (E-CAM) in our institute. Consecutive fifty patients (23 men and 27 women; age range, 40-86 years) with suspected PD undergoing Ioflupane-SPECT brain imaging during the period from April to October 2016 were enrolled in this retrospective study. Their final diagnoses were PD in 28 patients and without PD in 22 patients. SBRs of the patients were calculated using either new (Japanese database with different age and sex; NEW) or old (non-Japanese database not specifying age and sex; OLD) version software ([DaTView], AZE, Ltd. Tokyo, Japan). The McNemar test was used to compare the diagnostic accuracy between old and new versions.</p>			

(注) 論文題目が外国語の場合は、和訳を付すこと。

【細則様式第 1 - 2 号続き】

[Results] Based on the phantom study, the calibrated SBR could be calculated by $Y = 1.25 \times \text{Measured SBR} + 0.78$. The sensitivities for OLD and NEW were 100% and 93%, respectively ($p = 0.5$), and the specificities were 55% and 100% ($p = 0.002$). The diagnostic accuracy of NEW (96%) was better than that of OLD (80%, $p < 0.001$).

[Conclusion] We evaluated the utility of Ioflupane-SPECT using the Japanese NDB in the diagnosis of Parkinson's disease imaging with the conventional and new SBR calculation software. Ioflupane-SPECT using Japanese NDB improved the diagnostic accuracy of Parkinson's disease by decreasing false positive rate finding.

【細則様式第 1 - 2 号続き】

学位論文のもととなる研究成果としての筆頭著者原著

論文題目	Improvement of diagnostic accuracy of Parkinson's disease on I-123-ioflupane single photon emission computed tomography (123I FP-CIT SPECT) using new Japanese normal database
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