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The efficacy of ¹⁸F-FDG PET/CT and ⁶⁷Ga SPECT/CT in diagnosing fever of unknown origin

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Aim: Fever of unknown origin (FUO) is a diagnostic challenge. We aimed to assess the efficacy of ¹⁸F-FDG PET/CT and ⁶⁷Ga SPECT/CT in diagnosing FUO.

Methods: A total of 68 patients with FUO underwent ¹⁸F-FDG PET/CT and ⁶⁷Ga SPECT/CT from January 2013 through May 2016. Images were read independently. The imaging results were compared with the final diagnosis and categorized as helpful in diagnosis or noncontributory to diagnosis in clinical setting. The chi-square test or the Fisher's exact test was used to evaluate associations between categorical variables.

Results: Of 68 patients, 10 were excluded. In 23 patients, an infectious underlying disease was found. A malignant disorder was the cause of FUO in 10 patients. Non-infectious inflammatory disease was found in 11 patients. Adrenal insufficiency was the cause of FUO in 2 patients. In 12 patients, the cause of FUO was not found. High false positive rate of 44% (7/16) was observed in ¹⁸F-FDG PET/CT, while high false negative rate of 55% (23/42) was observed in ⁶⁷Ga SPECT/CT. ¹⁸F-FDG PET/CT studies depicted all ⁶⁷Ga-avid lesions. The sensitivity (79% vs. 45%) and clinical contribution (72% vs. 55%) of ¹⁸F-FDG PET/CT in diagnosing FUO was significantly higher than ⁶⁷Ga SPECT/CT (p<0.05).

Conclusion: Based on the study, the diagnostic performance of ¹⁸F-FDG PET/CT was superior to ⁶⁷Ga SPECT/CT in the workup of patients with FUO. Because of the quick result and superior sensitivity, ¹⁸F-FDG PET/CT may replace ⁶⁷Ga SPECT/CT where this technique is available.

Biography

Bor-Tau Hung has his expertise in nuclear medicine imaging interpretation. He has received his Residency training in Kaohsiung Chang Gung Memorial Hospital and became board-certified Nuclear Medicine Attending Physician. He is active in participating international meetings with special interest in clinical applications of ¹⁸F-FDG PET/CT and Y-90 microsphere internal radiation therapy.

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