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COMPARISON BETWEEN 18F-FDG PET/CT AND 99mTc-HMPAO SPECT/CT IN THE EVALUATION OF SUSPECTED OSTEOMYELITIS: EXPERIENCE IN 43 PATIENTS

P. Ferro², G. Cusato², C. Popescu¹, G. Cabrini¹, M. Milella¹, R. Sara¹, C. Rossetti¹

¹*Nuclear Medicine Center, Niguarda Hospital, Milan, Italy*

²*University Milano-Bicocca, Milan, Italy*

BACKGROUND-AIM

The diagnosis of bone and prosthetics infections is sometimes difficult to make and early diagnosis is crucial for the optimal management of these patients. Different diagnostic strategies are currently being used, including radiology, CT, cultures, and several serologic tests. Also, scintigraphic techniques have been proposed including 99mTc-HMPAO SPECT/CT and 18F-FDG PET/CT scan. The aim of our preliminary study was to evaluate and compare the diagnostic accuracy and clinical value of 99mTc-HMPAO SPECT/CT and 18F-FDG PET/CT for imaging of bone and prosthetic infections.

METHODS

We retrospectively analyzed 43 patients (24 males, 19 females, age range 24-84 years) with suspected osteomyelitis who underwent both 18F-FDG PET and 99mTc-HMPAO SPECT from 2010 to 2014. Clinical symptoms, serologic tests, radiological exams and presence of antibiotic therapy at the time of the study were recorded. Plain Computed Tomography was performed for anatomical correlation for both methods.

SPECT results were compared with PET findings, then each method was compared with serologic test (especially PCR value), microbiological culture and clinical follow-up

RESULTS

FDG PET scan showed higher values of sensibility (90 vs 58%) , negative predictive values (83 vs 59%) and accuracy (86 vs 73%) than HMPAO SPECT in identification of infection/inflammation foci. Instead SPECT exam demonstrated better specificity (97 vs 78%) and positive predictive value (97 vs 87%).

Moreover, PET scan identified more lesions than HMPAO-SPECT, either in soft tissue (26 vs 18) and in bone tissue (23 vs 13). We found a complete discordance between the two methods in 10 pts (23%) which resulted positive on PET scan and negative on SPECT. These patients underwent antibiotic therapy when both investigations were performed and their whole medical history suggested the presence of a chronic process.

CONCLUSION

Our results indicate that both FDG-PET and HMPAO-SPECT exams are a reliable support tool for clinical and serological data in the evaluation of patients with suspected osteomyelitis, providing additional information on anatomic localization and extent of the infection/inflammation process. Furthermore FDG PET has proven to be more effective in patients with chronic disease and HMPAO suffered from the ongoing antibiotic therapy.